

1895

Copies of This Pamphlet Sent Free to Any Address.

R. M. KELLOGG'S

→ GREAT CROPS OF ←

Small Fruits



1895

1895

AND HOW HE GROWS THEM

Being the Improved Methods of Propagating Plants and Increasing
Their Vigor, as well as of General Cultivation on the

RUSHIRE FRUIT FARM, IONIA, MICH.

One of the Largest Plantations of Small Fruits in Central Michigan.
Established 1869.

OUR HORTICULTURAL SCHOOL.

IF we were to start a horticultural school with a three years curriculum, I would establish it on some famous stock farm for the first two years. I would gather on it the famous Jerseys, Short Horns, Friesian-Holsteins, and famous breeds of horses. I would require each student to give special attention to their care, their physical needs, their food and comforts. I would have them know the history and genealogy of each. I would explain the objects of, the matings and teach him the principles, which eliminated defects in offspring, which we find in parents, and the means of constantly advancing the standard of excellence in the breed. After the student had thoroughly mastered the science of stock breeding, I would transfer the school to the orchard, the vineyard and the berry field. I would then impress upon him the simple fact that *all plants are male and female*, and that what he had learned in stock breeding applied in all particulars to the propagating of trees, plants and vines; that the plant is conscious of its existence and truly enjoys congenial environments; that the same law that produced the slick, velvety hair on the animal also produced the dark green foliage and vigorous growth of the plant; that the plant responded to a *generous supply of food*, light, air and protection; that the breeding powers of an animal are maintained by the same laws that increased and sustained the fruiting vigor of the plant; that like produced like in the plant as it does in the animal kingdom, and that we cannot violate these laws with impunity in the one case any more than in the other.

I would take these students to all the fairs and show them that the *winners in the stock department* were not bred from scrubs, but are the direct results of a long line of systematic breeding, and that the premium was awarded them not because of their weight or personal perfection, but because of their ability to breed and even intensify these characteristics which made them so valuable in themselves. Then I would take them to the horticultural division and look over the delicious fruits and vegetables, and here I should be compelled to tell the student that it was a mere show; that, so far as advancing horticultural interest, as now conducted and as the prizes were awarded, it was a dismal failure; that the specimens exhibited were collected by taking one here and there at random; and that the award was made to *the collector who hunted them up*; and that the tree, plant or vine which stood the blasts of winter and heat of summer and never failed to reward its owner yearly with an abundance of its richest fruits, was entirely ignored. The fruits should only be the evidence of the value of the tree or plant for propagating purposes, just as in

the case of the animals. The history of the tree or plant, its soil and environments, the amount of fruit it produced and general good qualities and "pedigree" should be given, as in the case of animals.

I would next conduct the class throughout the country among the nurseries and propagators, but, alas! we should find that the *ideal trees and plants* were all ignored; that scions and buds were taken from the nursery rows indiscriminately, and that small fruit plants were gathered up from old, exhausted beds by "brokers" calling themselves propagators, who purchase these "alley plants" of large growers, sending them out cheaply because their principal cost consisted only in digging and packing them. They are often spurious and incapable of fruiting, and their only good quality is cheapness; but are they cheap to the grower who expends large sums for fertilizing, preparation of his ground, rent of land, weeding and care which should entitle him to a generous reward, but instead of this, for want of strong fruiting power in plants, he reaps disappointments and discouragements until, after years of labor and anxiety, he throws up the business in disgust and poverty when if this precaution had been observed he would have found himself in possession of a lucrative business and in affluence? It is indeed a serious thing to load down a fruit grower with plants and trees devoid of constitutional vigor.

If we had searched all the descriptive catalogues of leading nurseries throughout the country and carefully scanned the columns of the public press, we apprehend we should find no nursery carefully and skillfully propagating from these "ideal plants" until we bring our class back to our own home at Ionia, where we have practiced it for years with the greatest success.

That the first three editions of this pamphlet gave a wonderful impetus to the idea of improving fruiting vigor by continuous selection of "ideal specimens," I am lead to believe is true. The hundreds of warm, congratulatory letters from leading pomologists in all parts of the country, who have tested the matter thoroughly, are gratifying in the extreme and I am led to believe that the prediction I made in the introductory of the first edition, "That if it shall cause two berries to grow where one grew before," has been fully realized.

I cordially invite correspondence with all beginners as well as the veterans. An exchange of ideas never fails of mutual benefits. Cordially yours,

R. M. KELLOGG, Ionia, Mich.

Note.—Nurserymen will kindly note the fact that the title and contents of this pamphlet are fully copyrighted, and they will govern themselves accordingly in making up their catalogues.



A PEDIGREE PLANT.

A Pedigree Plant may be defined as one possessing the greatest number of good qualities of its variety in the highest perfection, which have been accumulated through the habit of bud variation in plants by long, continuous propagation in rapid succession from ideal plants, resulting in great productiveness, health and vigor of foliage and loss of tendency to reversion.

What is Reversion? All animals and plants have a tendency to revert or go back to their wild state or take on certain defects of ancestors. This operation goes on very rapidly under unfavorable environments and neglect.

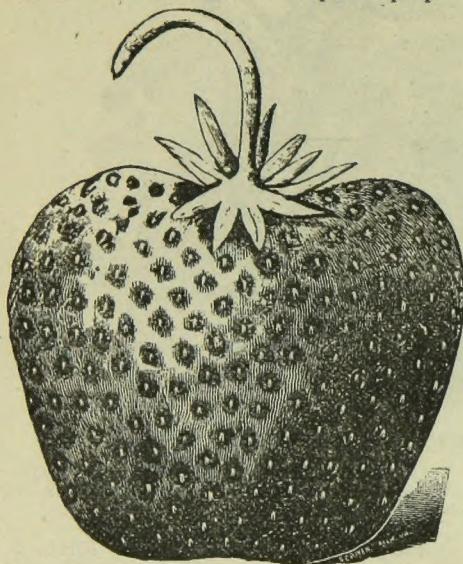
What is Bud Variation? All varieties of plants sport more or less. That is, they change from the usual type, both in fruit and foliage. Sometimes they are decidedly larger, finer flavored, more vigorous in every way. Then again they are much inferior. The general tendency is to go back to the wild state. Now we may take advantage of this and fix our ideal of what a plant should be and every year accumulate good qualities, by propagating successively year after year from those that vary in the right direction, until we have reached the greatest perfection. **Long and continued selection** will fix the characteristics in the variety so the tendency to reversion or going back to original type has disappeared. By preventing overbearing and consequent seminal exhaustion we may **double the average crop** without any extra fertilizing or cultivation. We must cease propagating from plants that have become permanently or partially barren. Every plant would be loaded with fine large fruit unless something prevents. Lack of adaptability to soil, frosts and storms

have an influence, but exhaustion is the great cause of failure.

How to Select Plants. First, we must have a clear conception of the type, and habits of the plant, its weak and objectionable points, as well as the ideal we wish to make it. This will require much study and patience, but we cannot proceed safely until this "ideal" is firmly fixed in our mind. We must be **able to detect the slightest change for the better**. Now, having provided ourselves with a quantity of stakes consecutively numbered, we go into the berry field as soon as blossoms appear to look for this ideal plant. It must be stocky, bright, clean and thrifty. Its fruit buds must be large, and, if a pistillate, free from stamens. If a perfect flower and to be used as a fertilizer see that the stamens are large, **well developed** and perfect in form. There must be as many buds and blossoms as it can bring to maturity and no more. An excessive amount of flowers is often a weakness to be discarded. If promising, a stake is placed by it. We select as many of such plants as possible. When the fruit has set we make careful measurements and note in our field book the results. We now decide as to shape, vigor and productiveness, and select accordingly, and cut off every berry except one. Bear in mind it is **excessive seed bearing** that produces exhaustion and this does not take place until ripening begins. The ripening of one or two berries serves only to develop its powers, while all the berries would exhaust it. Now we watch the ripening process and make the final decision and award **the first premium** for perfection in all points—size, vigor of foliage, form, color, firmness, flavor and uniform good quality,

All the plants immediately around it are removed and runners potted as fast as they appear and transferred to a special propa-

buds (runners) from the latter class no amount of cultivation or fertilization can make them *equal to the thoroughbred* as a fruiter. What has been said in regard to the Old Wilson applies to any other variety.

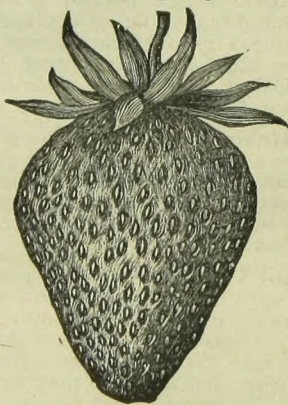


THE MARSHALL (B).

gating bed previously prepared. The next year we take all our plants from this bed. Follow this method year after year and you will be astonished at the ENORMOUS INCREASE IN FRUITAGE as well as the prices you can command. Raspberries, black berries and all other fruits are selected in the same way.

Losing Pedigree. It may be said a plant loses its pedigree when it does not possess the qualities that made it a pedigree plant. *We cannot multiply* our valuable varieties by planting their seeds because they will not come true, so we are obliged to resort to the division of their buds. This we call grafting, budding, layering or by cuttings. *A strawberry plant is only a bud*, the same as a scion from an apple tree; thus, there is to-day in all the world only one Wilson Albany strawberry plant. All the plants scattered over the country being only the divisions of the original plant, and yet there is the *greatest difference in their fruiting power* as well as the general constitution of this variety. Some were thrown under favorable environments, being restricted each year until they had accumulated wonderful fruiting power, while others have been neglected and permitted to fruit themselves into a condition of utter exhaustion and unproductiveness, hence *have lost their pedigree*. Now we may take runners from the first, or pedigree plants and they will fruit heavily and foliage will manifest its old time vigor, but if we take

Set No Plant without a knowledge of its pedigree or history. The question arises here, "Will new runners taken from an exhausted plant or a plant deficient in fruiting vigor be an improvement on the old plant?" As already explained a strawberry runner is a bud, and when you cut it off you are simply dividing the old plant and it contains every particle of weakness that the old one possessed, *the only improvement* being that it has new roots. But you ask will not these plants regain their lost powers. Placed under the same restriction under which you would put an animal and given high culture, it undoubtedly would recover, but it would probably require several years. *Some might recover* readily while others would make little or no progress in this direction. You will find abundant evidence of this by visiting the different plantations of your neighborhood, where you will find some plants heavily loaded with fine berries showing *full fruiting vigor*, while others show

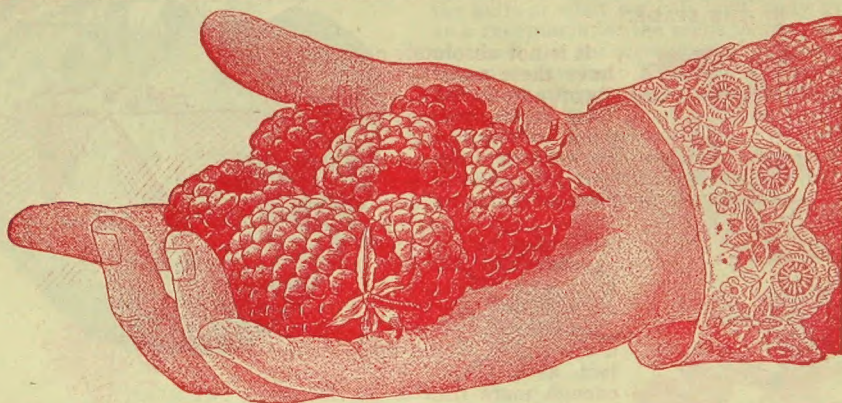


THE WARFIELD.

only moderate fruitage, giving evidence that they were undergoing exhaustion or partially recovered, while the great number of plants remaining blank or unfruitful prove they have made no progress in this direction. *Those blanks* being relieved from the heavy burden of fruitage will make runners very fast and soon crowd out the fruiter and should never be perpetuated by taking runners from them, *nor will it pay* to expend time on any mixed lot of plants.

The First Cost of Plants cuts a small figure. It costs as much to furnish land and fertilize it, set poor plants and cultivate as when the plants are strong in vigor, but the final results and profits are very different. In the one case it takes all the proceeds to meet the expenses, while in the other the largely increased price and ready sale would indicate the true value between the two grades of plants.

The Great Family Luxury.



THE . . . FRUIT GARDEN. :

**A DELICIOUS FEAST
THROUGHOUT THE YEAR.**

STRAWBERRIES over a month.
RASPBERRIES over a month.
BLACKBERRIES over a month.
LUSCIOUS GRAPES two months.

And Delicious **CANNED FRUIT**
all Winter.

A Fruit Diet means a clear head, clear intellect and a strong body. The Rich Fruit Acids are the great panacea for aches, pains and the "blues." A small plot of ground, a few strong fruiting pedigree plants, of early and late varieties in succession with a little delightful evening recreation in caring for them and the pleasure is yours.

TO ENJOY THEM YOU MUST GROW THEM.

Spurious Plants bring disappointment. Strong Pedigree Plants bring enjoyment.

NOTICE—Send your orders in early so as to be sure of the varieties desired.

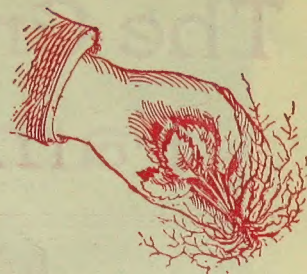
Address all Orders to

R. M. KELLOGG,
Ionia, Michigan.

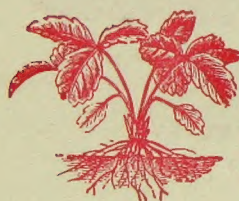


BY THE SPADE.

ABOUT THESE TOOLS.



TOO LOW.



TOO HIGH.

It is not absolutely necessary to have these tools to set and grow PEDIGREE PLANTS. You can set them in the ordinary way, taking great care to spread the roots out and getting them straight and not matted; *neither so low as to rot or smother the crown*, or so high as to expose them to the wind and sun. Firm them carefully with the feet at once and cultivate to retain moisture. Their use is a mere question of PROFIT.

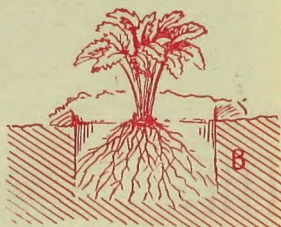
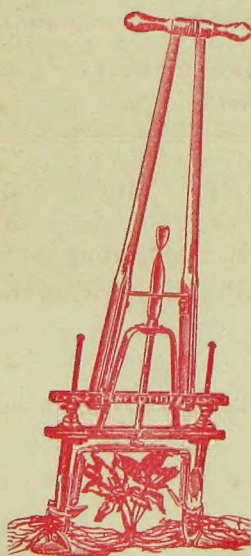
I believe it to be a fact that each five hundred plants set with this tool as directed will produce enough more fruit to pay for the machine than if set in the ordinary way, with spade or dibble. Now multiply the number of plants (500) by the number you intend to set and this by the number of years you intend to continue in business and you have the value of the tool.

THE AUTOMATIC RUNNER CUTTER is the only tool in the world that *will cut every runner every time and never injure a leaf*, and do it in one second. It means *big berries, high prices, no exhaustion of plants*, crops year after year and big profits.

The Agency. We want you to introduce them in your neighborhood, and for that purpose will send you the Automatic Runner Cutter for \$5 and Perfection Plant Setter for \$3.50, and all you can sell to other growers after that will furnish them so you can have a commission of one dollar on each machine. Price, \$6 for the runner cutter and \$4 for plant setter, F. O. B. at Ionia. If ordered early they can be sent by freight very cheaply. The two machines weigh about 20 pounds.

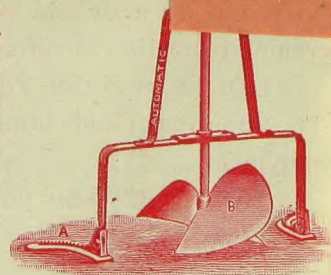
THEY CAN ONLY BE
OBTAINED OF

AUTOMATIC RUNNER CUTTER.



SPECIAL

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large orders will be m
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" \$10 "
" \$25 "
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here old plants are left
ants will apply to all d
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PERFECTION PLANT SETTER

R. M. KELLOGG, Ionia, Mich.

SPECIAL DISCOUNTS.

At large growers may avail themselves of these plants, the following large orders will be made:

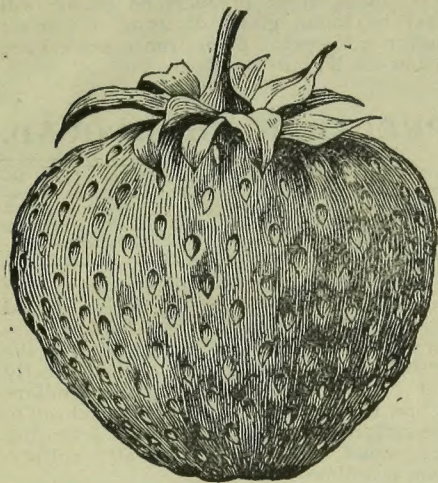
Ordering to \$5 or more.....	5 per cent
" \$10 "	10 " "
" \$25 "	15 " "

Comparing prices with other growers please consider these discounts, and the fact that these prices are for *Pedigree Plants* of the highest fruiting those from other nurseries are common layer plants, often from old here old plants are left year after to make plants.

Discounts will apply to all orders for above amounts.

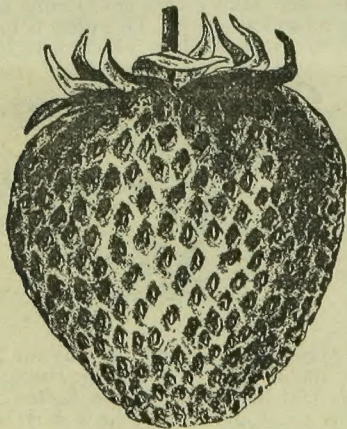
Read carefully our manner of propagating on pages one and two.

Keep in Mind that any berry plant will throw its whole energy into making fruit



JESSIE (B).

unless there is good reason for it. Of course you *pick the blossoms off* from spring-set plants. On pedigree stock you will notice



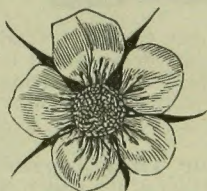
PRINCESS (B).

they manifest a disposition to fruit in spite of you and fruit buds will develop so you will have to go over them several times, while those on common or exhausted stock will generally yield to the first removal of blossoms.

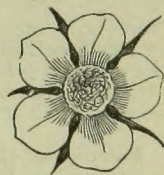
What is the most potent factor in causing the degeneration of varieties? All plants, like animals, are male and female and seem possessed of the same uncontrollable desire to reproduce themselves in the same manner. When an animal is left to unrestricted excessive indulgence it becomes impotent or sterile and incapable of per-

forming this function, and this is known to the medical fraternity as *seminal weakness*. Now when plants are allowed to overbear this is precisely their condition and you can not make them fruit only in a limited way, and they will throw their energies into *making foliage and not fruit*.

Keep in mind the all important point, that the pulp, or what we call fruit, only grows as a receptacle for the seeds to grow in. *If the seeds are not vigorous* the pulp or fruit will not develop. Examine a strawberry with hard knots and shrunken surface, those that pickers call "monkey faces," and you will not find any seeds. That is the reason that pistillates will not fruit alone. They blossom all right but there is no pollen, and no pollen no seeds; no seeds no fruit.



STAMINATE, OR
MALE FLOWER.

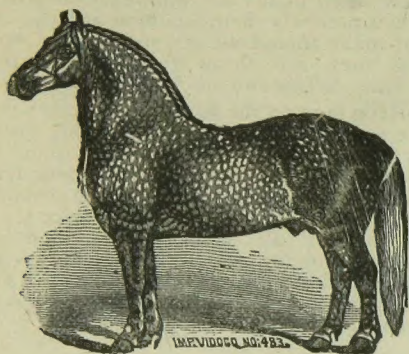


PISTILLATE, OR
FEMALE FLOWER.

Potency of Pollen. The pollen is furnished by the little yellow "liberty caps" around the outside of the yellow center, which contains as many pistils (female organs) as there are seeds in the berry. Now the pollen forms immediately after the blossom opens and is one of the *most exhaustive processes* known to vegetable pathology. It taxes the energies to the utmost. This is the reason why pistillate varieties are more productive than perfect flowering sorts. They are relieved from this burden, while the perfect flower carries both burdens. Now here is the *most important point*. To prevent this pollen exhaustion the blossoms on spring-set plants should be cut off *before they open* and not wait till after the berries are set. The next year the potency will be very strong in the "life-giving powder." The whole crop of fruit now depends on the potency of this pollen.

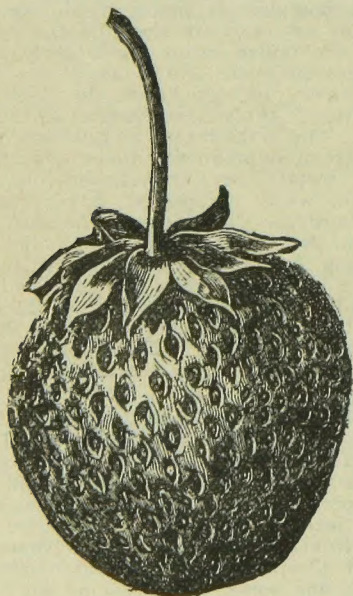
"The History of Stock Breeding in England" records that King George the Third was a famous breeder of fine horses. He kept a fine stallion for his own use and was only permitted to give a very limited service. Seeing the wonderful vigor of the colts from this horse the farmers persuaded the king to permit them to breed their mares to this fine horse, and the king gave the groom permission to collect a guinea each to be retained by himself, for each one served, so the groom did a fine business. *There was a great rush*, and before the close of the season the horse was rendered entirely impotent and never recovered. The results

were noted as follows: The first twenty colts, being of considerable intervals apart,



were very fine. The next twenty several grades lower, while the last degenerated to the *merest scrubs*, the last of the whole being almost worthless, and finally no foals were secured at all.

Precisely the Same Thing happens in plant life. If the vitality of the pollen is low there will be little development of seeds and berries will be small and flavor poor. *I have restrained this propensity* for years in all my perfect flowering sorts by removing the buds before they opened and I am



THE BEDER WOOD.

satisfied beyond all question the stamens are not only larger, but fecundating dust more plentiful and potent.

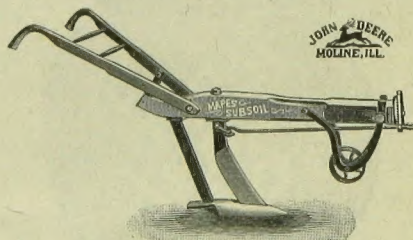
When the Importance of this matter is fully understood among fruit growers, as it is among stock breeders, no grower will ever be found guilty of using a perfect flower or bi-sexual plant, whose powers are below the highest standard.

PREPARING THE GROUND.

(The following extract was taken from an address delivered at Dixon, Illinois, by R. M. Kellogg, on the evening of December 11, 1894, before the State Horticultural Society at their special invitation, on the occasion of their thirty-ninth annual convention, the subject being "The Drouth, and How to Fight It.")

After giving a series of illustrations of the movement of water in the earth, by the aid of different soils in glass cases, and demonstrating the absolute necessity of having the ground deeply broken and made perfectly fine clear to the bottom to aid capillary action in bringing water from the subsoil to the surface, he gave his method of preparing the ground, setting plants, and after cultivation, as follows:

□ **We plow about six inches deep.** A disk harrow or cultivator may be used, instead of the plow, to break the surface up. It is now rolled and harrowed until as fine as ashes; then plow about ten to twelve inches deep, taking care not to bring up too much subsoil at once. This plow is followed by the subsoil plow, which acts like a



huge ground mole, going down as much as twenty inches further, breaking the subsoil up fine and leaving it at the bottom, but making a complete reservoir to hold water to tide over the summer's drouth. Our subsoil plow was made by the John Deere Plow Co. of Moline, Illinois, and is as perfect a tool as could be desired.

The subsoil thus loosened will hold several times more water than before being broken up. Capillary action will hold it there and bring it to the surface for the use of the plants, and by keeping the dust mulch, as explained further on, the ground cannot dry out for weeks. We now roll the ground so as to mash all lumps possible, then harrow, cutting it up till as fine as dust so you could force your hand clear to the bottom, always finishing by rolling down smoothly.

This subsoiling should be done in the fall or very early in the spring, so the rains will fill the ground. If you cannot plow till late, omit the subsoiling because the ground being loosened so much would prevent capillary action from bringing water from the still lower subsoil, so it might prove an injury. We now lay off the ground and set plants with the

Perfection Plant Setter.

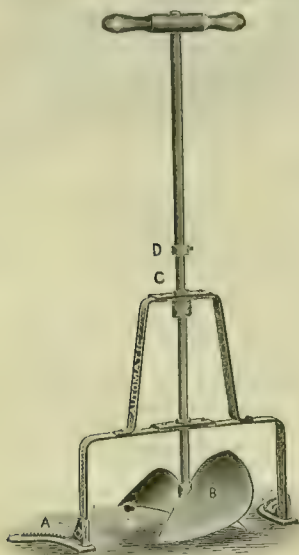


FIGURE 1.

Set it on the ground, placing your feet on pads (A Figure 1) and give the handles one turn. The "cone" is ready (see Figure 2) and you pass along rapidly.

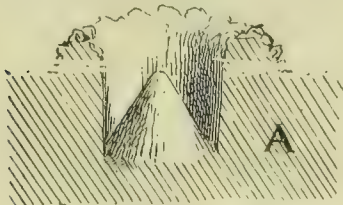


FIGURE 2.

The boy follows, grasping the plant by the crown, turning the roots up, giving it a slight shake, when the roots fall over the hand (Figure 3) and it is quickly turned on the cone. (Figure 4.)

The loose, mellow soil having been left immediately around the cavity is brushed back into the opening, or a boy follows with a hoe, stepping on the ground around the plant to firm it.

Every root is now buried in moist, mellow soil and braced in every direction so it cannot possibly be injured by the weeding machine.

No machine ever devised will set plants so perfectly and well. A vigorous growth will start at once.

When you set a plant too low the crown often rots or makes a very feeble growth. (See Figure 5.)

If the Plant is set too High the wind

dries the roots out and if a slight spring frost comes after the plant is set, the roots freezing and thawing in open air, it dies, and thus many vacancies are made.



FIGURE 3.



FIGURE 4.

New Roots always come out above the old ones and unless the crown sets down in the ground no new roots can start nor will new fruiting crowns form. (See Fig. 6).

The Perfection plant setter is (see fig. 1, letter d, and c) gauged so you can not set too low or too high even by carelessness.

If the plants are set with a spade or dibble the roots are always doubled up more or less.

(See fig. 7). **On a large plant** the roots near the crown are so thick the earth cannot be worked in among them, hence they are

sure to rot and poison the plant so it makes only a feeble growth. *The roots are so close together the feeders do not have room for pasturage, as they do when spread around the cone.* (See figure 4.)



FIGURE 5.



FIGURE 6.

The Spade is a Villainous Tool, anyhow. It leaves a



FIGURE 7.

glazed surface and when pressed together incases the roots in a sort of plastered wall through which no feeding root can penetrate. After it has been set ten days, pull it up and see the little white roots chasing up and down the old root till it can find a crack in the wall through which it may get to the mellow soil only a sixteenth of an inch beyond.



FIGURE 8.

On the contrary the **Perfection Plant Setter** fines the earth and every root is imbedded in mellow soil; none are crossed, tangled or matted under the crown. No hindrance to new roots starting anywhere and if you pull it up two weeks after setting you find the roots as seen in figure 8.

Every Root Doing Its Work, every one healthy and throwing out numerous feeders in every direction. A plant strong in fruiting vigor will thus be able to furnish "big berries and lots of them" at fruiting time and swell the bank account accordingly.

CULTIVATING.

The ground is now packed down with the feet and capillary action brings the water to the surface to be carried off by the hot sun and drying winds and it must be stopped at once. We *cultivate at noon* all the plants set before dinner. We use the Zephaniah Breed Weeder, manufactured by the Breed Weeder Co., 26 Merchant's Row,

Boston, Mass. We have no interest in the sale of this machine, but you can address them as above. It is the greatest labor saving tool ever invented and works to perfection. *No matter how many weeds or how*



close to the plant, it will pull every one out without the slightest injury to the plant and leave a fine loose earth on top so the force of gravitation overcomes that of capillary action, and the water collects under the loosened earth and must remain there to nourish the plants.

We go over our fields with this tool about every four days, one man and horse doing at the rate of twelve acres per day. We set about *twenty-five acres every year* and this one man does the work formerly done by fifteen to twenty men and does it very much better. *We do no hand weeding all summer.* If my enemy comes in the night and sows ten bushels of weed seed per acre on my strawberry bed, I have the best of him, for I kill the weeds while I am fighting the drouth and he has put me to no inconvenience whatever. No small weed can escape this tool and it will not injure a plant once per month, *provided the plants have been set with the Perfection Plant Setter.* Why? Because if the plants are set too low the ends of the teeth will catch in the crown and tear it off. If set too high the teeth will catch in the roots and tear it out, but if set with this machine, just right, being braced with roots in every direction (see fig. 8) the teeth will dodge around the crowns and you can't make it pull out or injure a plant. I wish to say here, that I would not sign a contract engaging not to use these four tools (Subsoiler, Perfection Plant Setter, Automatic Runner Cutter, and Breed Weeder) for **one thousand dollars per year.** They will bring me much more clear cash.

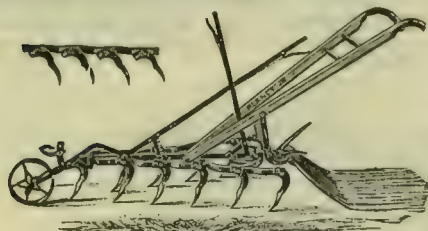
HILL CULTURE.

If you have a weeding machine, set 30x18 inches. If you do not have the weeder, set 30x30 inches and cultivate both ways with a PLANET JR. 12-tooth cultivator and pulverizer attachment, another of the grandest tools ever made.

Hill Culture may be called the process of *consolidating many little plants into one large plant* which shall send its roots down

deep and far out in search of food and moisture to produce the same number of quarts per acre of BIG, FANCY, RICH FLAVORED, HIGH COLORED, FIRM berries that enable the grower to select his dealer and dictate prices or cater to the select family trade that will pay any price for the best.

Depend upon it the market demands a higher grade of fruit and will richly reward the man who can furnish it.



PLANET JR.

Use only plants of *high fruiting power* and every plant should produce from one to four quarts to the hill. The great difficulty has been, heretofore, in keeping off the runners. That problem is now solved in the invention of the **Automatic Runner Cutter**. A good active boy will cut the runners off from three acres per day. He likes to see its fingers gather the runners up, carry them under the knives and clip them off. He will enjoy the work better than a ball play.

Directions. Use as a walking cane merely setting it squarely over the plant and press down about four inches. The twisted steel shaft (fig. 9, letter E) passes through the slot forcing the two fingers (A) around, gathering up the runners and drawing them into the opening at (B), where the knives on each side (C) are forced down by the cross-pieces (D), and the runners are instantly cut all by the one motion. Figure 9 shows the fingers which have carried the runners under the chisels or knives (C). On lifting the machine to place it over another plant the fingers instantly fly back, the knives raise and you are ready for the next hill. It is all made of cast and wrought steel and cannot be broken except by outrageously gross violence and any part can be replaced by mail.

It will not miss a single runner nor injure a leaf and can be quickly adjusted for large or small hills by turning a few set screws.

It is the only Machine ever invented that will do the work perfectly and is manufactured by the Ionia Strawberry Tool Company, Ionia, Mich. Price, \$6. They also control the patents and make the **Perfection Plant Setter**, price, \$4, or the two machines to one order for \$9. They may be ordered from me at

the same price, delivered F. O. B. at Ionia.

Every time you cut a runner, as a rule, you make a new fruit crown and new roots start out on the plant and you can readily accumulate these crowns until the plant is as *large as a bushel basket*, and send the roots far down into the subsoil.

It solves the question of drouth. You are thus able to use the weeder or cultivator and keep a dust mulch all around close up to the plants and save all hand weeding. Your mulching can be put on heavily close up around the plant, without danger of smothering them, to conserve moisture in spring, and you can pick the berries with *less than half the labor*, because every berry is a big one; they are all together and not scattered through the foliage as in the matted rows, where pickers must hunt for them. **They will sell for enough more** than matted row berries to pay for the entire cost of cultivation, to say nothing of a ready market and *fame and name of the grower*. It's a pleasure to handle such fruit, and the **most important of all** it prevents exhaustion, so the plantation will fruit for several years without resetting.

The Explanation is this: It is the seeds that exhaust the plants. A small berry has as many seeds as a large one. If the plant has large rootage just at the time when it is undergoing the great strain of perfecting its **great crop of fruit** it will find an abundance of food and moisture to sustain it; whereas a small plant with

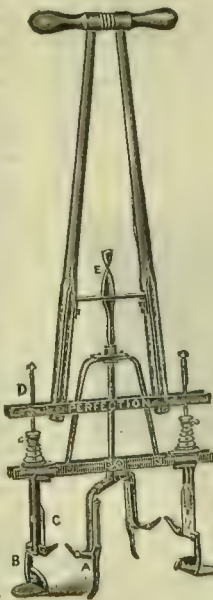


FIGURE 9.

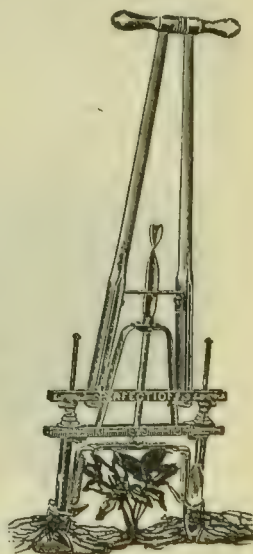


FIGURE 10.

short roots would wilt and fail for this want of nutriment and suffer complete exhaustion.

Still more important in the matted row one-half the number of berries are too small to pick, but each one loaded with seeds, are left on the vines to rot and take the strength and sap the life of the plant, but in hill culture the berries are all large and picked just as soon as ripe, thus relieving the plant so there are only a few seeds ripening at any one time.

The exhaustive process does not begin till the seeds begin to ripen. A green berry does not exhaust the plant any more than the foliage.

Let me repeat. In the matted row hundreds of little berries are ripe on the vines at once, where they remain for days while on the big "hill plant" all the ripe berries are picked every day. In the one case hundreds of seeds are ripening on each plant at once; in the other only a few, a strain which the plant is abundantly able to undergo.



HALF MATTED ROW.

The next best thing is the **HALF MATTED** Row set in rows three and a half feet by eighteen inches apart, if the weeder is used or 42x30 inches, so as to cultivate both ways with Planet Jr. Proceed the same as for hill culture until the close of the summer drouth or last of July. The plants now *have large crowns* deeply rooted and will send out big stocky runners. They spread out just right and take root quickly. As

New crowns will form and by the time it freezes up they will be twice as large as those rooting early and battling with the drouth, and warring on other plants for root pasturage.

Objections to Matted Row. I have reference here to the matted row grown without restriction of runners, as ordinarily done. *The runners start* as soon as plants begin to grow, and the summer drouth comes on soon after. In cultivating they are thrown around and twisted into strings so that the embryo plants are often left bottom side up and others entangled so they cannot get to the ground to root.

They will not root if the top of the ground is dry, and they will thresh around all summer till the fall rains begin. These runners take the entire strength of the mother plant so that no new fruiting crowns will form on it, and the first of November will find it the weakest plant in the row when it should be the strongest. *The roots do not enlarge* because the runner leaves do not seem to effect its rootage the same as its own foliage.

A plant in respiration, for all plants breathe through their leaves, gives off an immense amount of water, several times

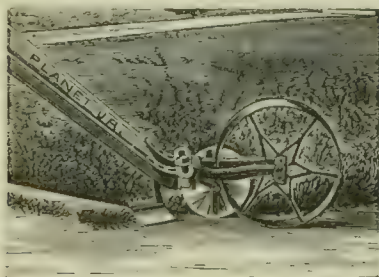


FIGURE 11.

soon as they have made one plant, take the Planet Jr. runner cutter (fig. 11) and run along each side the row before the cultivator, clipping off runners so as to leave the row about ten inches wide.

their weight every day. Now, all this water comes from the mother plant.

Worse than ever! The crust on the surface of the ground soon forms in the middle of the row and capillary action brings the water from the subsoil where it passes off without any hindrance whatever and to keep this crust broken up among the thickly matted plants after every rain where it can only be done with fingers involves an amount of work not to be thought of. *Look at the puny plants* all over the west this year as well as in the east. Notwithstanding there was no rain of importance from the last of May till near September there was not a day on my twenty acres of spring set plants where the ground was not wet to an inch of the surface, and my plants are the largest I have ever seen. Under favor-

never glutted with fancy fruit. The amount of this *concentrated deliciousness* a village or city will "stow away" will surpass your wildest estimate. You simply can't supply the demand, but a few bushels of little, flavorless berries will last any town a week.

More and Worse. You may preach this system of pedigree plants and high culture till doomsday, and nine growers out of ten will keep right on in the old rut of cultivating sterile plants if he can buy them a little cheaper than pure pedigree *high fruiting stock*.

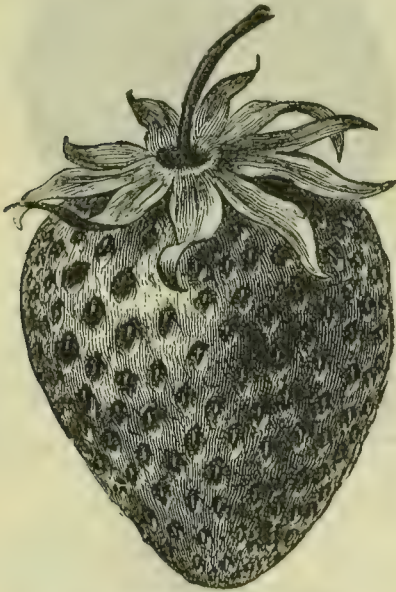
He will pay out a hundred dollars for fingering out the weeds and lose as much more on quantity and quality of his fruit rather than pay for a PERFECTION PLANT SETTER and runner cutter, and while these machines will do the work on twenty acres for a life time they will pay for themselves *extra* on one eighth of an acre every year.

What is your average crop? Will it go seventy-five bushels per acre? No; not fifty. What is the crop here? Three to four hundred bushels per acre of high priced, ready sale fruit.

You have good land, good opportunity, good everything, and there is no danger of too many adopting this plan of cultivation. The question to consider is this: Are you going to be the tenth man, and make a handsome success, make money, gain fame and name or be one of the nine. Which?"

MULCH AND FIRE.

Mulching is not absolutely necessary on sandy land or soil that does not heave badly. It should never be applied until quite hard freezing. Plants grow late in the fall and if applied early it might injure them. In the spring rake off a little so the leaves can



LOVETT'S EARLY (B).

able climatic conditions for the coming spring we may expect to harvest the **largest crop of berries** ever picked, whereas, other plantations throughout the country in thick matted rows amount to almost nothing. Yet the actual expense of caring for the half matted row or hill system was less than half that expended by growers who practice growing in the old system.

THE MARKET.

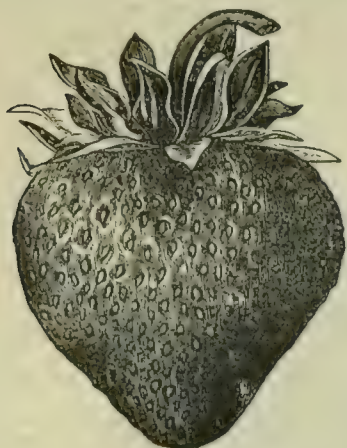
If you have large and luscious berries, you need not concern yourself, you will not have enough. *Your customers will growl* because you cannot furnish more. The markets of your town or any city were



ENHANCE.

come through and permit it to remain till after picking. Then mow off the leaves and stir out the mulching and when dry and a

high wind is blowing, so the fire will pass over quickly so as not to heat the ground, set fire and burn insects, fungi and weeds. Lose no time, not even an hour, in cultivating as capillary action is perfect to the surface and the precious water is getting away



OLD WILSON'S ALBANY (B).

rapidly. If you have a weeder, use it, if not, take a fine sharp tooth harrow and go through the row lengthwise and cut it all up fine, so the water will collect under the dust and a vigorous growth will be started at once. Of course, if you practice hill culture, cultivate with a Planet Jr. fine tooth both ways. Keep off new runners for best results.

SPURIOUS VARIETIES.

Strawberries rot on the ground and the seeds spring up and grow. They resemble the parents but very rarely are they equal in any respect, but growers occasionally resort to the old bed for plants which soon become mixed in and lower the crop. It is only to within a few years that growers have discontinued this practice, yet the baleful influence is still left with many nurserymen and growers. Half the varieties on many farms and nurseries are spurious.

No Test. It is not a test of varieties to get plants of low vitality. They cannot demonstrate their worth, and more valuable varieties go out of sight on this account than any other one thing. Take no chances.

Special Selection. After plants have been brought to a high fruiting power you can easily maintain it by removing blossoms on spring-set plants and take plants next year from this bed, and thus preserve their vigor for years without any special selection.

MANURE.

The soil should be reasonably rich, considerably richer than for corn or potatoes. Avoid putting on large quantities of coarse manure at once and plowing it under. It cuts off capillary action so water cannot come up from the subsoil. Spread manure in winter or early spring, so rains will wash juices out into the ground and before plowing rake up coarse straw and draw it off for



BURACH (P).

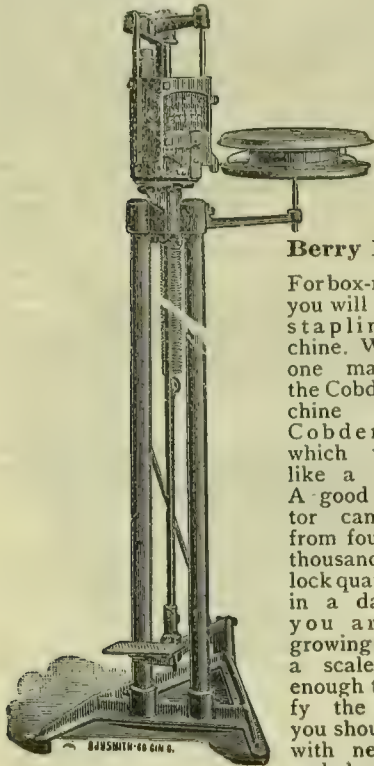
current mulching or pile it up to rot. Bone meal at the rate of four hundred pounds and from twenty to fifty bushels of unleached wood ashes per acre is a great favorite with me. Too much barnyard manure makes foliage at the expense of fruit.



SMITH'S IMPROVED (B).

Berry Boxes and Grape Baskets.

For many years we have had all our berry boxes from Wells-Higman Company, of St. Joseph, Mich. It is the largest establishment in the northwest; they use the most perfect machinery, employ skillful help, and use the best of timber, and make all kinds of fruit packages, especially Climax grape baskets. Write them for catalogue. They are thoroughly reliable.



STAPLING MACHINE.

thing for sewing all kinds of small boxes and are far superior to tacks.

Berry Boxes

For box-making you will need a stapling machine. We have one made by the Cobden Machine Works, Cobden, Ills., which works like a charm. A good operator can make from four to six thousand Hallock quart boxes in a day. If you are not growing fruit on a scale large enough to justify the outlay you should club with neighbors and have one. They are a neat

HOW MANY CROPS.

How many crops can be picked before plowing under? Under favorable circumstances three profitable crops may be taken. If the first crop produces as much as four hundred bushels per acre the plantation will be exhausted to such an extent that a second crop would not probably pay, but if you get caught with spring frosts so that only a light crop is secured the first year you may expect a very large crop the second year. In the vicinity of our largest cities where land is high and a fancy trade to cater to, where

really fine fruit secures the asking price and no bickering, it is almost a universal practice to take only one crop. We believe the grower who practices securing one large crop of **fancy berries** and plows under, manures and resets again next spring will get the most money for his labor. He will have a better hold on the market and will be very much less liable to get the ground infested with grubs. If this white grub does not get in and fertility is maintained there is no trouble about raising berries on the same land year after year, any more than corn and potatoes, but like all other crops a rotation is much more profitable if it can be done.

A Second Crop costs but very little. If you have burned the patch over after picking, as explained elsewhere, there will be little hoeing to do. All the setting and cultivating of the first year as well as cost of plants are saved and the second and third crops are often profitable, but you must set a new piece every year so you will have a supply of vigorous plants to reset from. The fruit from a two and three year old bed is generally three to five days earlier than a new bed, will average smaller but sells readily on account of its earliness. If you practice hill culture, the plants, as explained elsewhere, will not be exhausted, and three or more good crops can always be taken.

Varieties of Strawberries.

The great diversity of soils and climatic conditions render it exceedingly difficult to recommend varieties. Those which do well with me may not do well with you. If two varieties are set side by side, one fails, the other succeeds grandly, remove them both to another field and their success will sometimes be exactly reversed. It often happens that the same variety from another part of the country will do better; this has often been found true of the old standards, Crescent and Wilson. The only way you can determine definitely is to experiment with different varieties, bearing in mind that those sorts which do well over the greatest area of country will be the safest to plant largely, and that exhausted plants cannot be made to succeed anywhere.

I do not believe there is any soil on which large crops of corn and potatoes do nicely where some variety of the strawberry will not do equally well, and this can be definitely settled only by testing.

Set largely of those varieties which have been widely tested and found to succeed almost everywhere. There are many new varieties coming out and some are of the greatest value and may be exactly suited to your soil and location in which case it would be a valuable discovery. Keep in mind that one crop of three hundred

bushels per acre affords a *large profit*, while fifty bushels would not pay expenses. This difference often hangs on the variety and its adaptability alone.

The following varieties are perfect flowers or both *Male and Female*, and will fruit alone without regard to any other variety. I have restricted their pollen and offer them to planters with the utmost assurance that the potency of their "vital dust" cannot be equalled. I am not aware that any other grower in the country has practiced this method of restriction to increase the potency of the pollen.

Wilson Albany is a berry that has done more to popularize strawberry growing and make it a success than any other variety. It may be said to be the pioneer. In many localities it has been fruited to exhaustion and ceased to be profitable. Here it is still an old favorite. Dealers prefer to handle it and many customers demand it. It requires heavy moist soil or land liberally supplied with moisture. It has never succeeded on "drouthy" land on account of rust of foliage. On land where it once succeeded so grandly we invite a trial of these plants. Season early to late. 25c per dozen; 75c per 100; \$2.25 per 500; and \$4.00 per 1,000.

Parker Earle. This variety has its strong and weak points. On strong, rich soil well supplied with food and water to bring its great crop to maturity it is grand but in many localities it has failed entirely. It sets so heavily it cannot bring its fruit to maturity except under the most favorable circumstances. It makes very few plants until after fruiting heavily when runners start freely but, of course, they have then lost their value. Season medium. 30c per dozen; \$1 per 100; \$3.25 per 500; and \$6 per 1,000.

Beder Wood. As a heavy fruiter and furnishing pollen of the strongest potency for all early varieties it has few, if any, equals. Its foliage is vigorous and succeeds almost everywhere. Fruit above medium, conical, bright color and good. Season very early. 25c per dozen; 75c per 100; \$2 per 500; and \$3.75 per 1,000.

Pearl. A large beautiful berry of delicious flavor. On some soil it rusts some, but rarely enough to injure a crop. 25c per dozen; 75c per 100; \$2.25 per 500; and \$4 per 1,000.

Crawford. Large, beautiful and good; must have strong, heavy soil. It rarely succeeds on light land, and in some localities is liable to rust. Season medium late. 30c per dozen; \$1 per 100; \$2.75 per 500; and \$5 per 1,000.

Enhance. One of the most vigorous and productive very late berries. The potency of its pollen for all late varieties is high. Berries large, dark color and firm,

sometimes slightly irregular, but holds the market when other varieties have begun to run small. It is our main reliance for a late berry. 25c per dozen; 75c per 100; \$2.25 per 500; and \$4 per 1,000.

Gandy. The latest of all. While not so productive as Enhance it is a few days later and closes the season with fine large berries which sell at a big price. Big berries, firm and good. 25c per dozen; 75c per 100; \$2.25 per 500; and \$4 per 1,000.

Jessie. On nearly all soils a great success. Its quality is the highest, very large, robust foliage, and should not be omitted. It fails more often on light sand or low ground. It should not be allowed to mat too thickly, and for hill culture is immense. Season medium. 25c per dozen; 75c per 100; \$2.25 per 500; and \$4 per 1,000.

Michels Early. Its value is in its earliness and strength of pollen. In former years we urged it as a pollenizer for early varieties, but here we decidedly prefer Beder Wood or Meeks Early, as they are only a day or two later and much more productive, and better berries. 25c per dozen; 60c per 100; \$1.75 per 500; and \$3 per 1,000.

Meeks Early. A delightful surprise to everybody. Its pollen is strong in potency, bright, waxen foliage, never a spot of rust, and succeeds everywhere. On any soil where other varieties rust, give them a trial. Its berries are above medium in size, firm and good. Season very early. 25c per dozen; 75c per 100; \$2.25 per 500; and \$4 per 1,000.

Dayton. A fine, large, early berry of rich flavor. Foliage strong and vigorous and fruit of extra quality. A fine garden berry. 25c per dozen; 75c per 100; \$2.25 per 500; and \$4 per 1,000.

Mount Vernon, an old standard sort, medium size, dark color, and very popular in some localities. Season medium late. 25c per dozen; 75c per 100; \$2.25 per 500; and \$4 per 1,000.

Oregon Everbearing. A good, medium early berry, but does not bear in the fall or out of season more than several other varieties offered. 25c per dozen; 75c per 100.

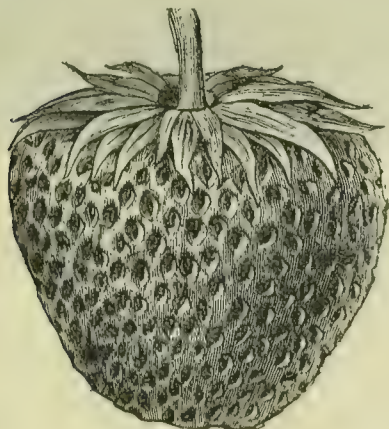
Van Deman strongly resembles Wilson, very firm, medium size and good quality. In many localities very popular. Here we prefer Wilson. 30c per dozen; \$1 per 100.

The Dew. Probably the largest berry in the world, but must be grown in hills on strong, rich land. It is somewhat irregular on many soils, but possesses the richest aromatic wild strawberry flavor. Eight berries have filled a quart. Season late. 75c per dozen; \$2.50 per 100.

Smith's Seedling, when properly restricted, is one of the finest grown. Its

foliage is very vigorous and when kept in hills or semi-matted row is one of the most productive on the farm. On account of its great vigor and deep rootage it does especially well on light land, or where not especially rich. It is strong in pollen and a good pollinizer for Haverland and other medium late varieties. I cannot resist the temptation to urge growers to test this variety. 25c per dozen; 75c per 100; \$2.25 per 500; and \$4 per 1,000.

Shuckless. This is a novelty. It is so nice for the good wife to step into the garden and pick large, luscious berries, already hulled. The shucks or hulls always remain on the vine. It does not bleed as most berries do. It is one of the most productive varieties, considerably above medium, quite firm and good. Its foliage is vigorous and succeeds on any soil. Season medium. 30c per dozen; \$1 per 100; \$2.75 per 500; and \$5 per 1,000.



THE EPPING.

Lovett. As a heavy fruiter, of good large berries of rich flavor and general good quality, vigorous in foliage, it stands the highest among perfect flowering sorts. As a pollinizer for all medium late berries it has no equal. Its potency is high and will not disappoint. Haverland and Bubach and all medium late pistillates are its companions. 25c per dozen; 75c per 100; \$2.25 per 500; and \$4 per 1,000.

Banquet. This berry was tested by the Agricultural Department at Washington and accorded a colored plate in the annual report. Its great value lies in its quality and more nearly approaches the wild berry flavor than any other berry ever introduced. Its season is medium early. For the home garden it should not be omitted. 75c per dozen; \$2.50 per 100.

The Marshall. This is the coming big berry. No berry has been introduced in recent years that created such a furore as this berry, and it is worthy of all that has been said about it. It has an immense foliage and the berries are hardly exceeded by the Dew, very regular, rich, wild strawberry flavor, deep blood red to the center, and as solid as a brick. It has taken the highest awards wherever exhibited, and the plants the coming year will be in the greatest demand. Season late. \$1 per dozen; \$5 per 100; \$11 per 500; and \$20 per 1,000.

Cyclone. We have this berry as it came from the introducer and plants are probably as fine as are obtainable. We have not fruited it or improved it by selection. It has shown so many good qualities and is so highly praised by all who have fruited it that we place it here. It is described as large, dark, glossy, red to the center, very firm, rich in flavor and one of the most vigorous on the farm. 40c per dozen; \$1.00 per 100; \$3.00 per 500; and \$5 per 1,000.

Aroma came from the same source as Cyclone, and has not fruited here. Reported by originator as above medium in size, very high flavor and good. Certainly has fine, healthy foliage and is now showing immense crowns and buds. 40c per dozen; \$1 per 100; \$2.75 per 500; \$5 per 1,000.

Burt Seedling has made many friends here as a fine market berry of good size and very uniform, and will ship anywhere. Its foliage is rank and free from spot or rust. Season early. We notice the Geneva, N. Y. experiment station places it at the head for firmness and productiveness. 25c per dozen; 75c per 100; \$2.25 per 500; and \$4 per 1,000.

The Robinson. It has not been "pedigreed" here, nor have I fruited it. I procured plants from the originator last spring. It has made a wonderful growth and has clean, bright foliage and splendid crowns. It is reported a strong fruiter of the crescent style, but is larger. 30c per dozen; \$1 per 100; \$2.75 per 500; and \$5 per 1,000.

The following varieties are pistillates or female plants and will not fruit unless there are some of the perfect flowering varieties set near them. Those classed as early should have early varieties for a companion. I set every fourth row if the rows run north and south, and every third row if they run east and west. This is on account of the prevailing west wind which carries the pollen across the rows.

The object of using pistillates is, they being relieved of the pollen bearing throw their whole energies into producing fruit and are therefore much more productive.



THE HOME OF THE EPPING STRAWBERRY.

□ **The Epping (p).** Among the new varieties which have come to stay is the Epping. I saw it first at the Michigan experiment station, where there were being tested side by side over 200 varieties. After looking them all over I asked the professor, who had been watching them closely throughout the fruiting season, which variety impressed him the most favorably and he promptly named the Epping. I now concede the correctness of his opinion, and now looking over all my own plats and searching for the "leader," the one showing the most points of excellence, I quickly come to this berry. Its foliage is large, healthy and free from spot or rust. It roots very deeply, and stands drouth remarkably well and possesses the ability to bring its great loads of berries to the highest perfection, the last berry being nearly as large as the first. Its fruit is very large and regular, bright red, rich flavor and firm. Wherever growers see the fruit they will beg for plants and I cannot help urging my friends to test it. No failures are reported anywhere. It has a long season, being early to ripen and continuing until the last. Price, 50c per dozen; \$2.50 per 100; \$7 per 500; and \$12 per 1,000.

Greenville (p). Another berry of great value. Splendid foliage; free from spot or rust. When heavy freezing began its foliage was as bright as in July. It is very pro-

ductive and we shall set of it very largely, especially for hill culture. I have heard of no failures. 40c per dozen; \$1.25 per 100; \$3.50 per 500; and \$6 per 1,000.

Timbrell (p). This is a competitor for the place held by Bubach and is probably the most discussed berry recently introduced. It certainly has great merit and will take a high rank. Endorsements have been warm and general. Here it is a favorite and we urge all growers to test it. It is large size, very productive and symmetrical, bright color and one of the berries that captures the market. Season late. 50c per dozen; \$3 per 100; \$6 per 500; and \$10 per 1,000.

Eureka (p). The beautiful Eureka is a fine large berry moderately firm, good quality and very productive. Foliage healthy, vigorous and desirable. Season medium late. 25c per dozen; 80c per 100; \$2.25 per 500; and \$4 per 1,000.

Middlefield (p). One of the most beautiful berries, good size, regular as a top, on strong, rich ground very productive, color bright red, firm and good. Season medium late. 30c per dozen; \$1 per 100; \$2.75 per 500; and \$5 per 1,000.

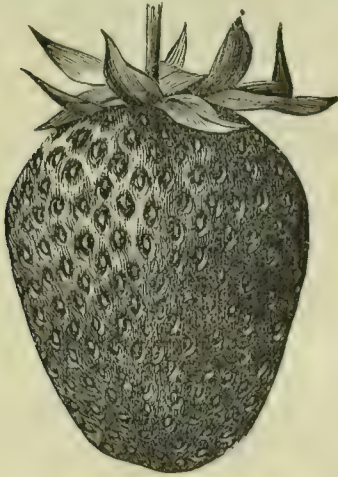
Bubach (p). The old reliable big show berry. On good, strong, rich land very productive. Berries very large, bright color and good. Takes the market by storm

and is a general favorite. Does not succeed well on light land. Season medium late. 25c per dozen; 75c per 100; \$2.25 per 500; \$4 per 1,000.

Jewell (p). A fine berry on rich, strong soil, but worthless on light sand or "drouthy" land. Fruit large, cone shaped, firm and good. Season medium late. 30c per dozen; \$1 per 100.

□ **Haverland (p).** The most productive, large berry under cultivation. Its great clusters literally pile the berries up in windrows. The trusses cannot hold them up and it must be mulched and not be allowed

selling berries grown. Fertilize with Beder Wood, Meeks Early or Wilson. Season very early to medium late. 25c per dozen; 60c per 100; \$2 per 500; and \$3.50 per 1,000.

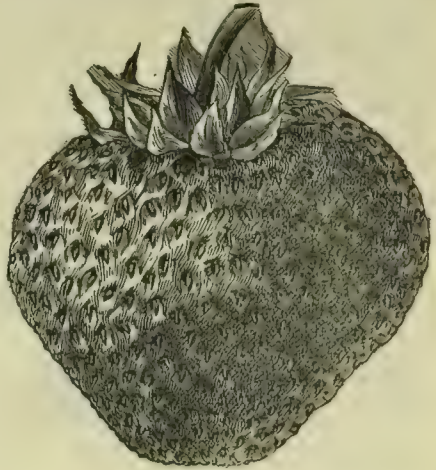


HAVERLAND.

to mat thickly. Berries large, bright scarlet, moderately firm but a tough skin so that it handles well. Season medium early until very late. Nothing better for a near market. Succeeds everywhere. 25c per dozen; 75c per 100; \$2.25 per 500; and \$4 per 1,000.

Crescent (p). This berry has made growers more money than any berry ever introduced. It succeeds everywhere even under neglect. We have improved it by constant selection and restriction, until it exceeds its old time fruiting vigor. Growers who, at one time found the old Wilson and Crescent their "financial agents" are assured the vigor of this stock will again meet their requirements. Very early to medium late. 25c per dozen; 50c per 100; \$2 per 500; and \$3.50 per 1,000.

The Warfield. The greatest market and shipping berry, and money maker. While the plant itself is small, yet it sends roots down deep and can mature an immense crop. Grown in half matted row with plants properly thinned, its berries are far above medium in size, dark blood red to the center and one of the best canning and



TIMBRELL.

Barton's Eclipse (p). We have not fruited this, hence is not offered as a pedigree plant, but we received our original plants from one of the most reliable growers in the country and are assured of its freedom from exhaustion and that it has not been



THE BANQUET.

(Reduced Size.)

taken from an old bed since its introduction. Our stock of plants is very fine and the demand is so urgent that we catalogue it. It is certainly a luxuriant grower and as I saw it at the experiment station, a great fruiter. Early, large size, very productive and good. 25c per dozen; 75c per 100; \$2.25 per 500; and \$4 per 1,000.

Edger Queen (p) strongly resembles the old Sharpless, but more hardy and productive. Berries large, moderately firm, season medium late. 25c per dozen; 75c per 100; \$2.25 per 500; and \$4 per 1,000.

Miami (p) strongly resembles Crescent. Roots deep and succeeds on drouthy or light sand. Season early to medium late. 25c per dozen; 60c per 100; \$2 per 500; and \$3.50 per 1,000.

Princess (p). Very popular wherever tested. Foliage is very vigorous and free from rust and a heavy fruiter. Berries are large, bright red and good. Moderately firm. 30c per dozen; 80c per 100; \$2.75 per 500; and \$5 per 1,000.

Great Pacific (p). A wonderful name and pretty fair berry. Strong grower. Big berries, only moderately productive, rich flavor. Season medium late. 25c per dozen; \$1 per 100.

Muskingham (p). A berry of much promise. Foliage large and entirely free from rust. Fruit large and very rich. Season medium early. 25c per dozen; \$1 per 100; \$2.75 per 500; and \$5 per 1,000.

POTTED PLANTS.

In July or August, as soon as a runner has formed a leaf, fill a small flower pot with rich soil and bury it under the runner so it will root in it. They can then be taken up and sent to all parts of the country and set so that the plant will hardly discover the removal. We ship them all over the country



in a light paper pot made expressly for this purpose, which makes express charges comparatively light. If everything is favorable, they will produce a good crop of berries the following summer. *Send for price list of potted plants* any time after June 15.

RASPBERRIES.

All that has been said in these pages in regard to seminal exhaustion and consequent degeneration of strawberries, applies with increased force to raspberries, blackberries and grapes.

It is a common practice for raspberry growers to fruit their plantations as heavily as possible for six or eight years,

and then take plants from it to start a new patch. The case is precisely the same as with strawberries. It is the same old exhausted patch with new roots on them and *nothing more*. The whole fruiting power is therefore *several grades lower*. If you want to make a test of this, take plants from such an old, worn-out bed for one row, and by the side of it set a row with plants taken from a young plantation which has been selected through several years from canes especially healthy in foliage and strong in fruiting power, having never been fruited over one year and always pruned close to prevent any exhaustion, and note the difference. Of course the cost of plants cuts quite a figure, but from the last row you will get enough more fruit than from the first row to pay several times the cost of plants as well as cultivation *every year as long as the plantation lasts*. It does not require much of a mathematician to figure out the difference of profits in the two cases. You may find some evidence in this direction by looking over the plantations of your neighbors.

The Cultivation should be thorough and frequent and continued through fruiting season. When canes are about eighteen inches high (not over that), pinch off the terminal bud. Do not pinch off over a half inch; the canes will then be stocky and the laterals large and strong. It is the greatest mistake to let the canes get several feet high and then cut off a foot or more. The laterals will be weak and will not form good fruit buds, and if persisted in for a few years the plantation will be destroyed. *Never pinch in the laterals*. One pinching will make all the wood needed and we must not interfere with the natural growth any more than necessary. If a cane shows any signs of weakness, disease or rust, dig it out and burn it. *Keep your plantation healthy*. As soon as fruit is picked cut out the old wood with a small steel hook, burn it at once and thereby kill any insects or fungi which may have found a lodgment in it. I regard this as very important. Many growers urge letting old wood remain till spring. I think this is a mistake. If the canes have been properly pinched they will need no stakes. The plants and fruit want plenty of air and light and should not be tied up in a bundle.

For Garden Culture it is often desirable to mulch very heavily with straw to keep down weeds and grass as well as to conserve moisture. In this way it only requires a little work, and a few plants will supply a large family.

All our raspberry plants this year are not only the largest in rootage but are pure pedigree from young stock and can hardly be equalled in fruiting power.

PRUNING RASPBERRIES AND BLACKBERRIES.

Our object of pruning is to secure a larger, richer and better flavored fruit as well as to prevent exhaustion of the plant. The pulp or that part we call fruit does not devitalize the plant, and were it not for the seeds the more wood the better, and the next season there would be no diminution of the crop; as already explained, *the formation of seeds is an exhaustive process*, and if allowed to overbear heavily will so deplete the plant's energies that in most cases a large crop will not be secured again in two or three years, if ever. There are as many seeds in a small berry, and they are almost as large, as in a big one, and the plant will give its whole life and energy to bring it to maturity. Now if we relieve the bush of a part of this burden the seeds in the balance will be more vigorous and the pulp much larger and take on a richer and higher flavor. To determine just how much wood we shall

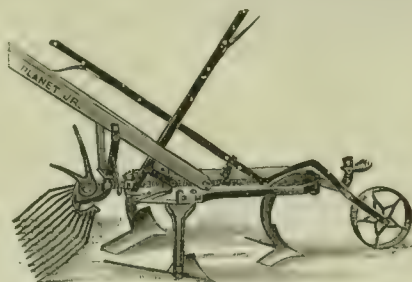


remove is a nice point and will require much skill and experience. The bush should be allowed to *bear all it can bring to the highest perfection*. Some varieties can be cut much shorter than others. Soils rich in nitrogen have a tendency to grow much wood and little fruit and should be pruned longer to secure the proper number of buds, while land rich in potash and phosphorous and poor in nitrogen will make less wood and set many more buds, hence must be pruned shorter.

The work can be done at any time after growth has ceased in the fall. Many of our most successful growers prune long in fall and winter and then after the fruit has set go over it again and cut away where they require it. If a plantation of raspberries is

properly pruned it can be maintained in strong fruiting vigor seven or eight years, and blackberries ten to twelve years; but if not properly pruned will often cease to be profitable in three or four years. The engraving, with these suggestions, will give a correct idea as to how the work should be done.

The Planet Jr. Manufacturing Company of Philadelphia, manufacture one of the finest tools I ever saw for cultivating in rasp-



THE PLANET JR. RASPBERRY CULTIVATOR.

berries, blackberries or grapes. The teeth are so arranged as to lift up and aerify the soil, and the fining attachment at the rear breaks up every lump and leaves it perfectly level to act as a mulch and at the same time cuts off every sucker or large weed, which is an exceedingly difficult thing to do with the ordinary cultivator teeth. These teeth never dive down into the roots. It is easily adjusted either as to width or depth, it being done instantly by a lever right by the hand.

The plants herein offered are large roots from young pedigree stock and must not be compared with plants sent out by the ordinary nurserymen who contract with Tom, Dick and Harry out of old, worn-out patches. They are dug with greatest care, packed at once in abundance of moss.

Order early so as to have them shipped by freight and save express charges.

The Conrath. Discovered near Ann Arbor, Mich., in 1886. No black raspberry is now attracting more attention nor has any variety ever received higher encomiums from horticultural stations and fruit growers generally. At Ann Arbor where anthracnose and rust had nearly ruined their plantations it stood entirely free from its ravages and produced the finest crops. In that vicinity where it is best known, it is being more largely set than all others combined. The demand for plants is sure to exceed the supply for several years. The photograph engraving shows the exact size of fruit which is jet glossy black, and the most beautiful in the box of any berry I have ever seen. It has never been injured by cold nor ever received protection in winter. Season medium early to very late. I am



PHOTOGRAPH OF THE CONRATH.

glad to aid in its introduction and urge all my customers to test it. It is a grand berry. 25c each; \$1.25 per dozen; \$7 per 100.

The Kansas. A large early raspberry, ripening only a little later than Palmer, very much larger, and of good quality. It is now attracting wide attention. The canes are the largest and is entirely hardy. It certainly is worthy of general cultivation and plants are much sought for, and will be for

a long time to come. Each 15c; 75c per dozen; \$3 per 100; \$7 per 500; and \$12 per 1,000.

The Palmer is a new variety likely to take the place of Souhegan. Ripens here last of June; berries are large and even color. Very vigorous and healthy. Should be in every collection. The earliest of all blackcaps. 40c per dozen; \$1.50 per 100; \$4.50 per 500; and \$8 per 1,000.

Nemaha strongly resembles the Gregg, but is more hardy and productive; of a jet black and very attractive in the box. It is a great favorite in Wisconsin and the northwest. 40c per dozen; \$1.50 per 100; \$6 per 500; and \$10 per 1,000.

The Older has been tested throughout the northwest, and has not been found wanting in any instance. It roots very deeply and withstands drouth better than any other variety. The canes are of ironclad hardness and grow to an immense size. It is a marvel of productiveness. The berries are as large as Gregg and free from the bloom so objectionable in that variety, and are so even in size and color that it makes it very attractive in the box. The demand for plants is very great and will continue so until every one who sees it has a supply. Don't pass it by. Season medium early. 50c per dozen; \$2 per 100; \$6 per 500; and \$10 per 1,000.

Gregg is the largest and finest of the late varieties. We have frequently found them in the boxes an inch in diameter. It is not quite so hardy as the others, but we have never lost a crop. The berries, to have the best flavor, should be allowed to get fully ripe. 40c per dozen; \$1.50 per 100; \$4.50, 500; \$8, 1,000.

Shaffer's Colossal is a hybrid. Crossed between the red and black, of a dull purple color, of immense size and rich sub-acid flavor; very productive and the best canning berry grown. If it had a bright red color it would stand at the head of the list. When people learn its quality it is a ready seller. 40c per dozen; \$2 per 100; \$6 per 500; and \$10 per 1,000.

Johnson's Sweet is the richest and sweetest blackcap in existence. Entirely hardy and very productive. Berries jet black, deliciously sweet, and nearly as large as the Gregg, and ripens only two or three days later than Palmer. It should, by all means, have a place in every collection. 40c per dozen; \$1.50 per 100; \$5.00 per 500; and \$9 per 1,000.

Pioneer or Progress. Berries of

good size, ripens very early and continues in bearing a long time. It has been thoroughly tested by practical fruit growers and will be largely set the coming season. 40c per dozen; \$1.50 per 100; \$4.50 per 500; and \$8 per 1,000.

Earhart. An everbearing variety of great value. It bears a heavy crop at the usual time, and then again on the current year's growth of cane in September, bears another large crop of large, fine berries. Its fall crop is almost as large as the summer picking and, of course, readily sells at



THE OLDER.

double price. Owing to the canes being loaded with berries it is hard to make tips root, so that propagating is difficult and prices will remain high for some time. 75c per dozen; \$5 per 100.

Miami and Ohio are the same. They follow Souhegan and are the largest yielders of any of the blackcaps, and a splendid, all-around berry. For evaporating it has no equal. I never saw or heard of its being injured by cold. 40c per dozen; \$1.50 per 100; \$4.50 per 500, and \$8.00 per 1,000.

Souhegan, the earliest of blackcaps. Medium size, quite sprawling in its general



JOHNSON'S SWEET.

oughly satisfied of its superiority to fill the place between Hansell and Cuthbert. 40c per dozen; \$2.00 per 100; \$6.00 per 500, and \$10.00 per 1,000.

Golden Queen is undoubtedly a sport of the Cuthbert, and a magnificent berry. It is of a bright yellow color, and in flavor and growth the same as Cuthbert. It is one of the most beautiful of all fruits in the can. 40c per dozen; \$1.50 per 100; \$5.50 per 500, and \$10.00 per 1,000.

The Cuthbert is called the queen of the market. Berries very large and firm, of bright red color and great beauty. One of the best shippers and in every respect the best late red berry grown for home or market. Our main crop is of this variety. All experiment stations yet designate it as the leading red raspberry. 40c per dozen; \$1.50 per 100; \$4.50 per 500; \$8.00 per 1,000.

habit and ripens the last of June and first of July. It has long been the leading extra early berry. 40c per dozen; \$1.25 per hundred; \$4 per 500; and \$7.00 per 1,000.

Red varieties propagate by suckers and cuttings. The cultivation is the same, except we do not pinch them back. The laterals are generally slender and buds not as strong as on the main cane. At winter pruning time we cut off the upper third of the cane, and enough wood will be left to fruit all the plant will bring to maturity without exhaustion. All suckers should be treated as weeds to get the best results in fruitage.

The Hansell we hold to be the best thoroughly tested extra early variety. Ripens before strawberries are gone. The soil should be quite rich and it will yield heavily of fine, large, firm, bright-colored berries that can be shipped to any part of the country. They ripen a little before Souhegan and Palmer. 40c per dozen; \$1.50 per 100; \$4.50 per 500; \$8.00 per 1,000.

The Marlboro. This berry occupies the same season as Crimson Beauty (which is a pistillate). I have tested it until thor-

The Muskingum is a new variety resembling the Shaffer's Colossal, but is said to be more firm, of a brighter color and less of the objectionable bloom of that vari-



HANSELL.

ety. It originated in Ohio, where it has been cultivated for several years, and is reported entirely hardy. 40c per dozen; \$2.00 per 100; \$6.50 per 500, and \$12.00 per 1,000.



CUTHBERT.

Number of Plants Required to Set One Acre.

STRAWBERRIES.

12x36 inches	—14,520
12x48 "	—10,890
15x48 "	—8,712
20x36 "	—8,712
18x36 "	—9,680
18x42 "	—8,297
18x48 "	—7,260
18x54 "	—6,453
18x60 "	—5,808

GRAPES.

7x7 feet	—888
7x8 "	—777
7x9 "	—691
7x10 "	—662
8x8 "	—680
8x9 "	—605
8x10 "	—544
8x11 "	—495
8x12 "	—453

RASPBERRIES, BLACKBERRIES, ETC.

3x5 feet	—2,904	3x7 feet	—2,074
3x6 "	—2,420	3x8 "	—1,815

BLACKBERRIES.

Blackberries are decidedly among the most profitable crops if properly managed. The demand for this luscious fruit as a table berry is very great and few communities are supplied. The repeated forest fires are fast destroying the wild berries in the great north woods, from which our cities have hitherto been supplied and the skilful cultivator can now reap a rich harvest in meeting this demand. They occupy a season when there are no other berries in the market.

The cause of failure lies more generally in the use of suckers taken from an old patch than from anything else. After a plantation has fruited itself to death or run out it is mowed off and plowed so as to cut the roots, when they will throw up an immense number of suckers, which nurserymen send out. They only cost the digging and that is more than they are worth.

Suckers do not make many roots near the cane, but throw them out a long distance and the sap has to come so far from the feeding roots to reach the leaves for assimilation that they are continuously throwing up suckers. Occasionally a bush will be found fairly well loaded with fine large berries, but a great majority bear only a moderate quantity. The plantation is always uneven in fruit and foliage. The exhaustion of the old plant follows into the new setting and robs the grower of his profits.

The Money comes from having every bush loaded with fine large berries of high quality and a fruiting power of such strength that large crops shall follow each other every year.

Don't you know people always like to boost a successful man? If he supplies a superior article, he deserves it. Well then, go at it right.

How to do it. Take roots from a young ideal plant, perfect in every respect and calous during the winter, plant in nursery rows, and in the fall take them up and put them through a second process. Understand a calous is the preparation to emit roots and always precedes root growth and it requires low temperature and considerable time to form. Now when set in the spring they will at once emit a mass of fibrous feeding roots from all sides occupying every inch of ground near the plant. The plants must **all be healthy** for if there is any weakness in the cuttings they will not grow. The plantation will last much longer, fruit heavier, stand drouth better, be more hardy because it maintains a steady growth throughout the summer and ripens its wood thoroughly. This has passed beyond the range of mere theory as our enormous crops year after year abundantly testify.



WESTERN TRIUMPH.

Cultivation. The ground should be deeply worked before setting the plants. The rows should be seven to eight feet apart and three feet apart in the row, giving ample room to keep the ground mellow, which is the great secret in preventing the berries from drying up. Do not let a sucker grow outside of the straight row, so it will remain only one plant wide, then the cultivator can do nearly all the work. Never take a sucker out of a bearing plantation for planting. By so doing you cut and mangle the roots, thus weakening the canes, besides it causes them to send up innumerable suckers, and you will soon find your plantation rapidly failing. Prune pretty closely if you expect large, fine fruit.

As soon as the new canes get to be two feet high pinch off the terminal bud and they will throw out laterals and become strong and stocky, needing no stakes or other support. (See article on pinching and pruning raspberries).

Don't pick them oftener than twice per week, as they are not ripe until they have been fully black for two or three days. A green blackberry isn't the sweetest thing on earth. Never allow the sun to shine on a blackberry after it is picked. It causes it to turn red and sour. Keep the boxes in the shade.

Strawberries or most any crop can be planted between the rows the first season. Keep the cultivator going. Blackberries root deeply, especially if the ground is stirred deeply the first year.

In a dry time cultivate after each picking. You will get a pretty good picking the second year and a full crop the third season if you have used recaloused root cutting plants.

All the plants here offered are fine recaloused root cuttings and cannot fail to prove heavy fruiters.

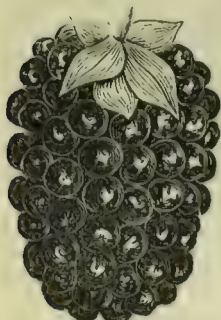
For general cultivation we have never found any variety equal to the **Western Triumph**. It has now been our main crop for sixteen years and during all this time we have never failed to get a profitable crop. It has brought us more money than any other berry on the farm. We have never given it any winter protection and it stands Michigan winters like a scrub oak. I have never seen a bush affected with rust or any other disease. It ripens a little before Snyder and is well out of the way before wild berries are on the market. The berries are large, sweet and luscious, with no hard core. 50c per dozen; \$2 per 100; \$7 per 500; \$12 per 1,000.

The Taylor Prolific is a late berry which generally succeeds without protection. It follows the Western Triumph. Its quality is very high, a general favorite and very productive. 50c per dozen; \$2 per 100; \$7 per 500; \$12 per 1,000.



TAYLOR'S PROLIFIC.

Ancient Brittan is taking high rank and is one of the most popular berries in the Northwest. In Wisconsin more of it is grown than any other variety. While it is classed as hardy, they find it profitable to give it winter protection. The fruit is rich and sweet, and commands a high price. 60c per dozen; \$2.25 per 100; \$8.00 per 500; 14.00 per 1,000.



ANCIENT BRITTAN.

Snyder is of iron-clad hardiness and succeeds over a wide area. The fruit is of good quality and sells promptly. We have improved this old sort by selecting ideal plants and planting root cuttings in rapid succession until it is finer than ever. 50c per dozen; \$2.00 per 100; \$7.00 per 500; \$12.00 per 1,000.

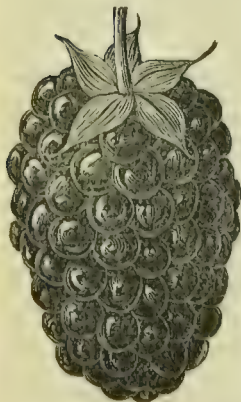
The Erie has proven of great value and is being largely planted. It has proven itself very hardy and productive of large luscious berries. Its season is early to quite late. 60c per dozen; \$2.50 per 100; \$8.00 per 500, and \$15.00 per 1,000.



ERIE.

DEWBERRIES.

The Lucretia is far ahead of any other variety with which we are acquainted. It is a trailing blackberry of immense size, and when properly pruned is enormously productive and of excellent quality. It does not require land rich in nitrogen, but plenty of potash and phosphoric acid in the way of wood ashes will greatly benefit it. It should be pruned to three or four



LUCRETIA DEWBERRY.

canes and cut back to two or three feet, and if foliage becomes too rank it should be shortened in.

The adverse criticism of this plant always comes from those who have given it no care. Proper cultivation and pruning are as essential with this as in the case of raspberries and blackberries. It pays to cover with straw to protect it in winter.

The berry should be allowed to remain a day or two after it has turned black, when it is delicious fruit. 50c per dozen; \$2.00 per 100; \$7.00 per 500, and \$12.00 per 1,000.

CURRENTS.

Only a few years ago every family had a bountiful supply of this cooling and delicious fruit. It grew with the least possible trouble in any neglected corner, but the currant leaf eater appeared and people did not know how to fight it, so the bushes all died. The insects appear soon after the leaves start, low down in the center of the bush all close together. A very weak solution of Paris green and water sprinkled on the insects will dispose of every one. If they appear later dust white hellebore on the plant while the dew is on, or put a teaspoonful in a pail of water and sprinkle on with a whisk broom.

The soil should be very rich and the weeds and grass kept out. Rotten wood or refuse from the chip yard is a favorite fertilizer, but an abundance of barnyard manure will do. I have found a heavy mulch of coarse manure or a layer of straw will produce the best results. The roots come close to the surface so that cultivation must be shallow.

The Fay Prolific is a great favorite under high cultivation and favored localities. The fruit is immense both in size of berry and cluster. It requires good strong soil and plenty of manure. On poor ground or light soil it is regarded as a failure 1 year: 10c each; \$1.00 per dozen; \$6.00 per 100. 2 years: 15c each; \$1.50 per dozen; \$8.00 per 100.

The Victoria is one of my favorites. The fruit is of good size and enormously productive.

The Cherry is under the same cultivation, nearly as large as Fay, and is one of the most productive on the list.

Old Red Dutch still holds its own as reliable and productive.

The White Dutch resembles the red except in color.

The White Grape is much sought after on account of its mild and delicious flavor. The fruit is of good size and very beautiful.

One year. 10c each; 75c per dozen; \$5.00 per 100. Two year: 15c each; \$1.25 per dozen; \$6.00 per 100.

THE GOOSEBERRY

Is now attracting much attention and proving one of the most profitable berries grown. The demand is increasing very much faster than the supply. Their general cultivation is similar to that of currants, and insects are disposed of in the same way.

For picking use a pair of thick buckskin gloves and strip the fruit off by handfuls and run through a fanning mill, or pour them on a blanket so that the wind will blow the leaves out. It's quick work. Keep the bush pruned rather closely, and top of bush open. They do better with heavy mulch.

The Downing is the most popular berry for market, large, even, fine grained, and makes a fine, large bush. 1 year 10c each; \$1.25 per dozen; \$6 per 100; 2 year, 15c each; \$1.50 per dozen; \$8 per 100.

Houghton is enormously productive and very free from mildew. Berries are not quite so large as Downing, but in some markets sell better. 1 year, 10c each; 75c per dozen; \$4.50 100; 2 year, 15c each; \$1.25 per dozen; \$6 per 100.

Smith's Improved is a large pale yellow berry of great beauty and surprisingly productive. It is making many friends everywhere. 1 year, 15c each; \$1.50 per dozen; \$8 per 100; two years, 20c each; \$2 per dozen; \$9 per 100.



THE DOWNING.

THE VINEYARD.

Of all the fruit that grows there is none more beautiful and tempting than the grape, with its great rich clusters hidden away in the cool shade of its dense foliage. They are so easy to grow and afford so much pleasure for the labor expended that a **business man, mechanic or farmer** should deny his family or the hired help an abundance of this luscious fruit comes close to the borders of cruelty. A few vines and a very little care and the enjoyment is yours.

The great point is to have cuttings taken from strong and vigorous vines that have always been kept properly pruned. We have already stated that cuttings taken from exhausted vines will not fruit as heavily as those from canes which have never been allowed to overbear.

The Soil should be rather dry and neither the stiffest clay nor lightest sand. Good corn and potato land will do. It de-

lights in warm sunshine for foliage and shade for its fruit.

Fertilizing should consist largely of ground bone and wood ashes, or *very thoroughly* rotted stable manure which *must not* be brought in direct contact with the roots. Never use rank unfermented manure under any circumstances. If the ground is in fair fertility about three or four hundred pounds of bone and from twenty to fifty bushels of unleached wood ashes per acre will do the business. They should be cultivated in and thoroughly incorporated with the soil. I give a dressing of ashes every year. I am satisfied it gives richer flavor to fruit and ripens the wood much better.

Preparing the Ground. The ground should be plowed as deep and made as fine and mellow as possible. Some people dig holes two feet deep and four or five feet across and fill them up with rich top soil to within a few inches of the top of the ground and then set the vine and afterwards fill full. If the soil is porous or quite sandy so the water will settle away quickly, this is precisely the *right* thing to do. But if you have a firm soil, a stiff clay, it is precisely the *wrong* thing to do; the water will soak into the soft earth and hold it there like a tub and destroy the vigor of the vine. In the latter case break up the ground as deeply as possible and set the vine not too deep.

Never put any manure in the hill when setting. Manure seems to be rank poison to a young grape root. More vines die from this than any other cause. *Don't do it.* Never mulch a grape vine. The soil should be warm where the roots are feeding.

The vines may grow as they please the first year, but the second year must be staked or trellised and pruned to three buds; after they start rub off all but the strongest one.

Pruning. There are a great many ways of doing this. Bear in mind that fruit grows on the present year's growth from canes of last year's growth. Very rarely a fruiting bud is found on an old cane.

The Trellis. We prefer what is known as the *Kniffin system*. Two wires are used; the lower one not less than three and one-half feet from the ground and the second fully two feet above the first. The vine is allowed four arms, each extending two to four feet out on each wire. Then prune each lateral back to from one to three buds, leaving in all not more than from twenty to forty buds, according to the vigor of the vine, and then the grapes should be thinned soon after the fruit sets so as not to leave more than thirty to forty clusters. The clusters will be larger and better flavor and ripen much earlier. A strong, healthy vine will always set more fruit than it can ripen and the following year will be weaker,

so that close pruning and thinning one year with another is the only way to secure continued large crops. If the vines are to be used for propagating they should not be allowed to bear over one-third the above in any year.

It is a great mistake to train the vine so low as to densely shade the ground. It invites mildew and rot. They delight in sunshine and plenty of dry air.

Cultivate frequently and nearly up to the time the fruit begins to color.

VARIETIES OF GRAPES.

There are too many varieties that are not especially valuable. We describe a few of those we regard as the cream of the list:

Black Grapes.

It may be said that the introduction of the **Concord** was the beginning of successful grape culture in this country. It succeeds everywhere a grape can be grown. It is yet the leading market variety and too well known to need description, but in many localities is giving way to the

Worden, which I believe is the richest and sweetest black grape grown in this country. Perfectly hardy, fully as productive as Concord, larger berry and cluster, and a week or ten days earlier. They are gone before Concord arrives.

Moore's Early is one of the best extra early grapes, ripening fully two weeks ahead of Concord. The berry is very large, entirely hardy and on rich soil very productive. It is generally all gone before Worden comes in. Must have very heavy strong, rich soil.

Talman (or Champion) is a prolific and profitable extra early market grape, ripens about the time of Moore's Early. Flesh sweet, juicy, and a rank grower. Healthy, hardy and vigorous.

Clinton. Bunch medium, shouldered, long and narrow. Berries round, medium size, covered with thick bloom. Colors early, but does not fully ripen until quite late. The pulp is a little tough, but has a rich, vinous flavor.

Mills is a new grape, vigorous and healthy. Ripens with Concord. Bunch and berries very large and quality superior.

Rockwood ripens with Moore's Early. Large size, healthy and hardy.

Wilder (Rogers No. 4.) Bunch and berry large, early, hardy, healthy, and productive; good keeper, profitable, and of excellent quality.

The Early Ohio. This is the earliest black grape known. Ripens ten days to two weeks before Moore's Early. Bunch large, compact and shouldered; berry medi-

um, covered with a heavy bloom. Leaves very large, thick, leathery. Foliage heavy and perfectly healthy, and fully as hardy as Concord. A vigorous grower, very productive, and of good quality. Berries adhere firmly to the stem. One of the best shippers and the only early grape that will not shell from the stem. It's the early grape that catches the high prices, and those who set of this variety will reap a harvest.

The Hosford. This grape was discovered in a vineyard of Concorde by Mr. George Hosford near this city. The seed had fallen between two branches of a vine in such a manner that it was protected from the hoe and cultivator and was supposed to be a renewal shoot, as Mr. Hosford practiced that mode of culture. When it came into fruitage it quickly attracted attention, and cuttings were made and subsequently the vine was taken up and removed, showing conclusively that it was a seedling of the Concord.

It has all the hardiness, productiveness and vigor of that sterling old variety. The berries and clusters are fully double the size of the Concord, single berries often being found exceeding an inch and a quarter in diameter. It is superior in flavor and shipping qualities. The leaves are large and leathery, and although other grapes in the immediate vicinity have suffered much from mildew, this has been entirely free from it and has never been injured by the cold.

The leading nurserymen of the country have made attempts to secure control of the vines for dissemination, but Mr. Hosford refused to part with any vines or its wood for less than thirty thousand dollars, a sum quite beyond the reach of the ordinary nurseryman; but last year the entire stock was placed in our hands and is now offered to the public without restriction. It has been fruited and tested by Mr. Hosford for nineteen years, and he now has a vineyard that is a wonder in itself. It is beyond all question the greatest sight at fruiting time ever seen. There is not a shadow of a doubt about its great value, and that its claims will be fully sustained everywhere. The average price in the market for its fruit has always been two or three times that for which other grapes were sold. It has been grown by the side of Concorde for nineteen years and proved its equal in productiveness and hardiness, as well as its general good qualities. Its season is the same as Concord. The vines can only be obtained of me.

The engraving of the Hosford, on the 26th page, is made from a photograph and fairly represents the clusters as seen in Mr. Hosford's market baskets. We believe it will take the highest rank everywhere and prove the leading market grape. The price has been reduced so all can test it.



THE HOSFORD

MAMMOTH GRAPE.

(See page 25.)

Red Grapes.

Delawares. Considered by many as the standard of excellence in grapes, requires strong soil and good culture.

Diana. A little later than Concord, bunches medium and compact. Flavor peculiar, much liked by some and disliked by others.

Agawam. One of the longest keepers and best family grapes grown. Can be kept till March.

Jefferson. One of the best red grapes, a good grower, hardy and productive. Ripens with the Concord.

Lindley (Rogers No. 9). Desirable for extensive planting. Strong grower, healthy and hardy. Should be in every garden.

Moyer resembles Delaware in appearance, but is more vigorous and healthy. Hardy and productive.

Poughkeepsie Red. Much larger in bunch and berry than Delaware, but resembles it in color and taste; very early.

Salem (Rogers No. 22). Bunch and berry very large. Healthy, hardy and vigorous. A good keeper and fine table berry.



MOORE'S DIAMOND.

Vergennes. Bunch and berry very large, flavor rich, very early and a good keeper.

Woodruff Red. Very large and handsome, strong grower, very healthy and of best quality.

Brighton. Dark red; one of the most desirable of the new red grapes; clusters very uniform and beautiful; quality fine.

Wyoming Red. One of the most hardy and beautiful very early red grapes grown. Skin rather tough, keeps well, fine flavor, vine very vigorous and hardy.

White Grapes.

Moore's Diamond. Bunch and berry very large; strong grower, hardy wherever grown, and becoming more popular every year. It has come to stay and will be largely planted and sought for in the market.

Niagara. Quality about like Concord; bunch and berry very large; vigorous, healthy and hardy.

SPRAY PUMPS.

Spray pumps have become a necessity if one is largely engaged in fruit growing. I have had much experience with them, and have tested about all the different makes, and unhesitatingly pronounce the *Eclipse* the best made. It has more points of excellence than any other, giving the highest pressure and therefore the finest spray. No leather valves or rubber to get out of order. All brass and steel. The State Horticultural Societies of Michigan, Illinois and



ECLIPSE SPRAY PUMP. Missouri have passed resolutions placing it at the head of the list, as well as all experiment stations where it has been submitted for test and comparison. I have no interest in its sale, but you can send a postal card to *Morrill & Morley, Benton Harbor, Mich.*, and get circulars with full description.

The same firm also makes the finest knapsack sprayer in existence.

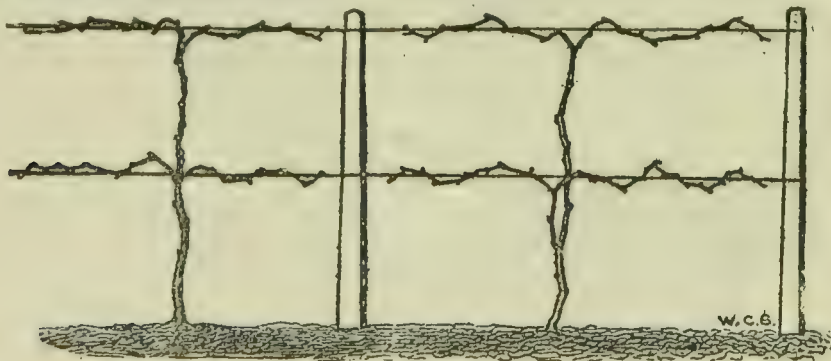
The strawberry rust and all fungus diseases of strawberries, raspberries and grapes readily yield to the Bordeaux mixture and every grower should have a sprayer. These tools do not have leather packing to be eaten up by vitriol, but are solid brass and will not get out of order.

You should write the secretary of the Government Experiment Station of your State for bulletins on spraying. They are sent free to any one.

R. M. KELLOGG'S GREAT CROPS

PRICE LIST OF GRAPE VINES.

VARIETY.	ONE YEAR, NO. I.			TWO YEARS, NO. I.		
	EACH	DOZ.	100	EACH	DOZ.	100
BLACK GRAPES.						
Concord.....	\$ 10	\$ 80	\$ 3 50	\$ 15	\$ 1 00	\$ 5 00
Mills.....	75	6 00	35 00	1 50	10 00	45 00
Rockwood.....	50	5 00	35 00	1 00	9 00	70 00
Moore's Early.....	15	1 00	6 00	20	1 50	7 00
Talman.....	15	90	4 00	20	1 25	5 00
Clinton.....	15	1 00	5 00	20	1 25	7 00
Hosford Mammoth.....	40	6 00	30 00	60	6 00	45 00
Wilder (Rogers No. 4).....	15	1 00	4 50	15	1 50	6 00
Worden's.....	10	75	4 00	15	1 25	6 00
Early Ohio.....	75	6 00		1 00	8 00	
RED GRAPES.						
Delaware.....	15	1 20	5 00	20	1 75	8 00
Diana.....	15	1 25	5 00	20	1 75	7 00
Agawam.....	15	1 00	4 00	20	1 50	6 00
Jefferson.....	25	3 00	10 00	35	3 00	18 00
Lindley (Rogers No. 9).....	15	1 00	4 00	20	1 25	6 00
Moyer.....	20	2 00	8 00	30	2 50	12 00
Poughkeepsie Red.....	30	2 00	12 00	50	4 00	20 00
Salem.....	15	1 25	5 00	18	2 00	7 00
Vergennes.....	15	1 25	5 00	20	2 00	7 00
Brighton.....	15	1 00	4 00	20	1 50	7 00
Wyoming Red.....	15	1 00	6 00	20	1 50	7 00
WHITE GRAPES.						
Moore's Diamond.....	25	2 00	7 00	30	2 50	12 00
Niagara.....	15	75	4 00	15	1 25	5 00



KNIFFIN SYSTEM OF PRUNING.



STUTZMAN EVAPORATOR.

When the market is glutted you need an evaporator so you can hold the market for a few days. D. Stutzman, of Ligonier, Indiana, makes the finest thing in this line. You will pay for it many times every season, in saving raspberries, peaches, etc.

Write him for particulars.

D. STUTZMAN,
Ligonier, Ind.

PLEASURES OF FRUIT GROWING.

There is no branch of agriculture so fascinating and enjoyable as fruit growing. It is a labor of love from start to finish—a continuous feast of God's greatest luxuries. Its refining influence is felt by all who come in contact with it and it follows them through life. It is *business farming* and will do more to develop systematic methods and business capacity in a young man than any other line. *Do not begin*, except with a firm determination to enjoy it and make a success of it. Place your ideal high and work to it.

Since the "ideal" is the essence of perfection, and there being many elements over which we have no control and which must enter largely into our calculations, entire success is not always attainable. Nevertheless, nature has well defined laws that produce certain results, and these laws can be easily learned by simply cultivating the habit of observation, and when we have mastered the situation obstacles which seem insurmountable are easily overcome.

There are no hidden mysteries about it. It only requires the exercise of good "horse sense."

BEGINNING.

If I were a young man with limited means I would rent the best piece of land I could find and if possible buy one horse and exchange work for heavy plowing. I would not hesitate to get into debt, but would practice rigid personal economy and bend every effort to grow the highest grade of fruit. Depend upon it, one big crop of fancy fruit will put you on your feet in great shape. The customers will flock around you and you can command your customer by the quality of your fruit.

Read this pamphlet carefully, and if you are still in the dark write me.

You have a right to make your fruit look as *neat and attractive as you please*. The corners of the box should be filled up even and the points of the berries turned up, making them even and as full as they can be crated. Small berries look decidedly neat fixed in this way, and the big berries can be put in the bottom to surprise your customers when the beauties roll out of the box. They will appreciate the joke. Never offer customers berries in an old broken or dirty box. If berries once mould in a box the spores remain in it and they will ever afterwards mould very quickly. This is especially true of raspberries.

The Family Ticket. The big money

comes from having regular customers so you know just what you are going to do with your fruit when you leave the field. You want all the profits in the business. The ladies are not generally supplied with change every time you call. If charged on your own book they sometimes think they have not received the amount of fruit delivered, and you lose good customers. People always buy more on credit than for ready cash. I have selected such families as I wish to trust a week, and I seldom lose anything, and furnish them a ticket printed on heavy manilla card board about three inches wide and ten inches long, after the pattern of the following:

DON'T FORGET TO BRING THIS CARD.

TIME IS PRECIOUS.

When you hear our bell ring, kindly HAVE THIS CARD READY AND BE AT THE DOOR, so we can make the proper entry and deliver the fruit with as little delay as possible. Payment expected every Monday.

M _____

In Account with R. M. KELLOGG.

Date	Quarts Wanted	KIND	Dr.	Cr.

Personal appearance goes a great way when calling on customers. I had a *fruit wagon*, built with side springs, nearly seven feet long. It rides as easy as a boat. No matter how fast I drive, my fruit is never "jumped" or bruised. It is handsomely painted and lettered in gold, and provided with a large gong bell so I can let people who do not buy regularly know I am in the vicinity, as I only call at the door of customers who purchase every day. Customers decide on what they want before I get to the door.

Confidence of Customers. When you have secured this you will find it a big stock in trade. Never sell anything to a customer that is not what they think they are paying for. Keep posted on all matters pertaining to fruit and be prepared to explain all the latest points in canning and see that they are supplied with an abundance of each kind for that purpose. Exercise your skill as a salesman and you will soon hear more about getting fruit to supply the home market than a market for what you grow.

MEMORANDUM OF YOUR ORDER.

The order blank on the opposite page is perforated, so you can tear it out to send your order on. Please make an exact copy on this page, so you can tell if it is sent right. Send your order as early as possible, so we can fill it exactly as ordered. Later in the season some varieties are gone and we have to substitute, but we never do that if we can possibly help it, and then only to avoid disappointment. **See that your Name, Post Office and State** are written so plainly that a mistake cannot be made.

The price of plants given is **the lowest** for which they can be furnished, and is for the number specified and not for the same number of several varieties.

Plants to any place in the United States by mail; add to the price, for postage, on Strawberries 5c per dozen, 25c per 100; (plants cannot be sent by mail at thousand rates;) Raspberries Blackberries, Gooseberries and Currants 5c each, 10c per dozen, and 50c per 100; Grape Vines, one year old, 5c each, 15c per dozen, 25c per 50, and 50c per 100. Postage to Canada, Nova Scotia and British Columbia is twice the amount given.

[illegible]

Date 1895

R. M. KELLOGG, Ionia, Mich.

For the amount enclosed (\$.....) please fill the following list as nearly as your stock will permit. If varieties named are all sold you may use your best judgment and put in what most nearly resembles it for the money.

(If no substitution will do, so direct.)

Read Notice to Patrons on the inside of back cover before filling out your order.

Name.....

Post Office.....

County.....State.....

Ship by
(Say whether to be sent by freight, express or mail.)

Name of Freight }
or Express } Station is

County.....State.....

[illegible]

Notice to Patrons.

The plants herein offered are propagated from **Pure Pedigree Stock** and ideal plants, as explained in the chapter on "Improvement of Plants." I am confident they are the only plants obtainable propagated in this manner and that their fruiting vigor cannot be equalled. While I practice the highest cultivation, I know how to give, I have demonstrated that the vigor of my plants has been the basis of my success.

ORDERS MUST AMOUNT TO ONE DOLLAR.

The correspondence, postage and booking orders for less than that amount are only filled at a loss.

TAKING UP STRAWBERRY PLANTS.

The whole row of plants is taken up, and all those poorly rooted are thrown out. All dead leaves and stems are picked off and roots straightened by such a system, that from the time they leave the ground until they are ready for shipment, they are not exposed a half minute altogether. No plants are wintered in cellars, but every order dug fresh immediately before shipment.

For shipping plants in quantities we use the **Perfection Plant Crate** which is made at the factory expressly for me, and so constructed that the roots are imbedded in damp spagnum moss, with leaves exposed, the same as when settling in the ground. They grow right along on the road, arriving as fresh and vigorous as when taken up, even if on the road two weeks.

GUARANTEE OF GENUINENESS.

The plants being propagated in special beds and labeled when taken up, would seem to preclude the possibility of mistake, and I guarantee plants true to label, with express understanding that if any mistake happens to be made, I am not to be held for damages beyond the amount received for the plants; or, I will replace them with those that are true to name.

The **Price** given is the lowest for which plants can be furnished. One price to all and square treatment is my motto. I make no attempt to compete with nurserymen who grow plants on black muck and leave old plants to make runners from year to year. They cannot be made to fruit heavily by any process of cultivation.

The first cost of plants cuts a small figure when the expense of fertilizing, fitting the land and cultivating are considered, and no one can afford to use exhausted or spurious stock at any price.

GUARANTEEING RESULTS.

These plants are shipped to everybody who orders them. I have no control over them after their delivery for transportation. I know nothing of the treatment they are to receive, so you can readily see that I cannot possibly guarantee any results whatever. My responsibility ceases when delivered to express companies or freight agent for shipment.

MISTAKES.

Our system of counting and checking off plants ought to secure us against mistakes. We try very hard to prevent them, but we are not infallible, and they sometimes catch us, in which case we are more than glad to rectify them, if notified at once.

SUBSTITUTION.

When nurserymen have sold out a variety, they can purchase a supply from other nurserymen who have a surplus; but we are unable to do this, because no other plant grower propagates pedigree stock; hence, if we are out of a variety ordered, and no permission is given to substitute something closely resembling that ordered, the money will be returned. Our stock is very large, and we hope to deliver, in all cases, precisely what is ordered; but it is well to give the permission so there will be no disappointment. In any case the true label is always placed on the plants sent out.

No Charge will be made for packing crates or boxes and delivery to forwarders.

Plants by Mail. Plants are packed with spagnum moss, oiled paper, with leaves exposed, so that they will go safely to any part of the United States for one cent for each two ounces (or eight cents per pound), and to Canada at one cent per ounce. We have sent plants as far east as Nova Scotia, and west to British Columbia with entire success.

Express Charges. On account of the compact manner and style of crate we use, the express company guarantee us a reduction of **TWENTY PER CENT.** over general merchandise. If customers are charged more than this, I will see that it is refunded.

By Freight. Plants can be sent safely by freight at very low rates to all parts of the country. Shipping bills will be sent by mail, and if they fail to arrive on time the railroad companies will send telegraphic tracers, hastening them forward at once. Courts have held that railroads are responsible for holding perishable goods. We have never lost but one box, and that the company paid for. Customers ordering by freight assume all responsibility, and would do well to consult local agents as to time and route.

A Through Car to Chicago leaves Ionia every night, reaching Chicago the next night; and also Milwaukee, across the lake, and calculations can be made for the west and the northwest from these points. Freight rates are very low.

Terms. Strictly cash with order. Orders are booked when one-third the amount is remitted, and balance sent before shipment. Plants will be sent C. O. D. if one-half is remitted with orders.

Order Early. All orders are filled in the order in which they are received; hence the earlier they are sent in the better.

How to Remit. Send money by post-office order, bank draft, express order or registered letter. I cannot be responsible for money sent loose in a letter.

References. You can get my commercial credit and standing at any bank, factory or store using R. G. Dun & Co. or Bradstreet's commercial reports; or write to First National Bank, Postmaster, agents American and National Express Companies, Ionia, Mich.

Answering Questions. We take pleasure in answering any questions concerning stock or cultivation or any information my long experience may enable me to give. Write me any time.

Postage is as follows, which must be added to price list: Strawberry plants, 5 cents per dozen; 25 cents per 100. One year grape vines, 10 cents per dozen; 25 cents per 50; and 40 cents per 100. Raspberries, blackberries, gooseberries and currants, 5 cents each, 10 cents per dozen; 50 cents per 100.

MAIL.

CUSTOMERS ON THE PACIFIC COAST and Atlantic States can have plants sent by mail as cheaply and safely from here as if the distance was only ten miles. Small orders should be sent in this way.



THE STANTON PRINTING CO., 2 PEARL ST., GRAND RAPIDS.

